BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-Note remarks : MB 14,7 d 8 : 28.06.89 Test sheet Edition Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. 270-315 : 0 401 848 804 Tolerance + - 0.50 (0.75)Injection pump Pump designation : PE8P110A320LS3842-1 Time to cyl. no. : 8 : 0 411 818 716 EP type number BASIC SETTING Governor Governor design. : RQV350..1050PA378-7 : 0 421 813 714 rpm: 750 Governer no. 1st speed Rack travel in mm : 12.70...12.80 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.4...12.6 Engine : 0M442 100 s: (12.1...12.8) : 213.0 : 2100 1st version kW cm3 : 0.4Rated speed Spread TEST BENCH REQUIREMENTS 100 s: (0.7) Test oil 2nd speed rpm : 350.0 inlet temp. , C : 38...42 Rack travel in mm : 8.0...8.3 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3) Spread cm3: 0.4 100 s: (0.7) Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 (B) Setting of injection pump Overflow with governor quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL rpm : 300 1st speed Test nozzle holder : 0 681 343 009 : 1.50...1.70 assembly travel mm rpm : 800 2nd speed : 4.90...5.30 travel mm Opening rpm : 1100 : 172...175 3rd speed pressure, bar : 7.90...8.50 travel mm rpm : 1150 4th speed : 8.90...9.70 Test lines : 1 680 750 015 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position : 6.00x1.50x600 x Length mm Degree: -1 Speed rpm : 1110 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP

Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

1st version

Speed rpm : 750

Del.quantity : 124.0...120.5 1000 : (121.5...128.5)

cm3 : 4.00Spread 1000 : (7.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 11.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 250 Minimum rack trave: 9.50 rpm : 350 Rack travel in mm : 8.00...8.30 CONSTANT REGULATION rpm : 350...450 Speed START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1050 Del.quantity cm3/ : 137.0...141.0 1000 s: (134.0...144.0) cm3 : 5.00Spread 1000 s: (8.00) rpm : 1050 Speed Del.quantity cm3/: 87.0...89.0 * 1000 s: (84.0...92.0) Spread

cm3 : 6.00 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70 rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

* = Set at reduced-delivery stop.

Firing order : 10- 9- 4- 1- 8- 7 - 6- 3- 5- 2 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 17,4 b Edition : 29.03.89 Phasing : 0-45-72-117-144-189-216-261-288-333 : 11.85 Replaces Tolerance $+ - \dots : 0.50(0.75)$: ISO-4113 Test oil Combination no. : 0 401 849 160 Time to cyl. no. : 10 Injection pump BASIC SETTING Pump designation : PE10P100A320LS842 EP type number : 0 411 809 134 1st speed rpm : 1150 Governor Governor design. : RQ300/1150PA187-2R Rack travel in mm : 12.00...12.10 Governer no. : 0 421 801 112 Del.quantity cm3/: 11.5...11.7 Customer-spec. information 100 s: (11.3...11.9) : DAIMLER-BENZ Customer : OM 403 cm3 : 0.3Engine Spread : 259.0 : 2300 1st version kW 100 s: (0.5) Rated speed rpm : 300.02nd speed Rack travel in mm : 7.4...7.6 Del.quantity cm3/ : 1.3...1.9 TEST BENCH REQUIREMENTS Test oil 100 s: (1.0...2.1) cm3 : 0.3inlet temp. , C : 38...42 Spread 100 s: (0.5) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -1 rpm : 650 Speed Rack travel in mm : 13.80...14.60 Test nozzle holder assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 1150 Speed : 115.5...117.5 Del.quantity 1000 : (113.5...119.5) cm3 : 3.00 Test lines : 1 680 750 015 Spread 1000 : (5.00) Outside diameter x Wall thickness : 6.00X1.50X600 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. per values ____ Speed rpm : 650 Rack travel in mm : 14.2 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 11.00 Speed rpm : 1195...1210 : 3.20...3.30 Prestroke mm

2nd rack travel in: 4.00

Speed

rpm : 1235...1265

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

4th rack travel in: 1350 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.5 Testing: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 300
Rack travel in mm : 7.40...7.60
Rack travel in mm : 2.00 rpm : 410...450 Speed TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.00...12.10 2nd speed rpm : 600 Rack travel in m: 12.00...12.20 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 100.5...105.5 1000 s: (98.5...107.5) Spread cm3 : 5.00 1000 s: (7.00) RACK STOP ADJUSTMENT Speed rpm : 650 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1195...1210 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 125.0...145.0 1000 s: (121.0...149.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 18,3 d 7 Edition : 09.06.89 Replaces Test oil : ISO-4113 Combination no. : 0 401 849 706 Injection pump Pump designation : PE10P110A320LS3818-10 : 0 411 819 705 EP type number Governor Governor design. : RQV300...1150PA486-5 : 0 421 813 752 Governer no. Customer-spec. information : DAIMLER-BENZ Customer : OM 423 Engine 1st version kW : 261.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 130...150 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)
Rack travel in mm : 9.00...12.00 Firing order : 10-9-4-1-8--6-3-5-2 7 Phasing : 0-45-72-117-144 Phasing : 216-261-288-333 Tolerance + -, : 0.50 (0.75) : 0-45-72-117-144-189-Time to cyl. no. : 10 BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 12.6...12.8 100 s: (12.3...13.0) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.4...2.2 100 s: (1.1...2.4) cm3 : 0.4Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.60...1.80 2nd speed rpm : 800 : 4.50...5.00 travel mm rpm : 1150 : 7.50...8.00 rpm : 1250 3rd speed travel mm 4th speed : 9.50...10.00 travel mm GUIDE SLEEVE POSITION Control-Lever position Degree: -1 Speed rpm : 1230 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150

x Length mm

Del.quantity : 126.U...zo.u 1000 : (123.5...130.5) Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 10.20 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 16...24 Testina: : 200 Speed rpm Minimum rack trave: 10.20 Speed rpm : 300 Rack travel in mm : 7.90...8.10 CONSTANT REGULATION rpm : 300...600 Speed TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 11.20...11.30 rpm : 600 2nd speed Rack travel in m: 11.50...11.70 3rd speed rpm : 900 Rack travel in m: 11.50...11.70 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 110.0...114.0 1000 s: (107.0...117.0) cm3 : 6.00Spread 1000 s: (9.00) **BREAKAWAY**

1st version

A06

1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm_ : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.90...4.00 (3.85...4.05)Rack travel in mm : 9.00...12.00 Firing order : 10-9-4-1-- 6-3-5-Note remarks Test sheet : MAN 18,2 c Edition : 07.02.89 : 22.1.88 Replaces : TSO-4113 Test oil : 0-45-72-117-144-189-Phasing Combination no. : 0 401 849 734 216-261-288-333 Tolerance $+ - \frac{1}{2} : 0.50 (0.75)$ Injection pump Pump designation : PE10P120A520/4LS3843 Time to cyl. no. : 10 : 0 411 829 707 EP type number BASIC SETTING Governor Governor design: : RQ300/1000PA837 Governer no. : 0 421 801 372 1st speed rpm : 1000 Rack travel in mm : 11.30...11.40 Customer-spec. information : MAN Customer Del.quantity cm3/: 20.4...20.6 : D2840LF/460 Engine 100 s: (20.1...20.9) : 338.0 : 2000 1st version kW cm3 : 0.5Rated speed Spread 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.7...2.3 Test oil inlet temp. , C : 38...42 100 s: (1.4...2.6) Overflow valve : 1 417 413 025 Spread cm3 : 0.8100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position assembly : 1 688 901 019 Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 Opening : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,8 1st version Speed rpm : 1000 Aneroid pressure h: 1000 Del.quantity : 204.0...209.0) Test lines : 1 680 750 067 : 5.00 Outside diameter Spread cm3 x Wall thickness 1000 : (9.00) : 6.00x1.50x1000 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Setting point: per values rpm : 600 BEGINNING OF DELIVERY Rack travel in mm : 20.0 Test pressure, bar: 25...27 Testing:

1st rack travel in: 10.30 rpm : 1045...1060 Speed 2nd rack travel in: 4.00 Speed rpm : 1125...1155 4th rack travel in: 1250 Speed rom : 0.00...1.00LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 6.1 Testing: Speed : 100 rpm Minimum rack trave: 7.60 : 300 Speed rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 rpm : 365...405 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 11.80...11.90 rpm : 600 2nd speed Rack travel in m: 11.80...12.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1000 : 11.30...11.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 380 Rack travel in m: 10.40...10.50 3rd pressure hPa : 500 Rack travel in m: 10.90...11.10 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1045...1060 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR, 2-7778

rpm : 500 Speed

Del.quantity cm3/: 144.0...146.0

1000 s: (141.0...149.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 18,2 c1 : 07.02.89 Test sheet Edition : 22.1.88 Replaces Test oil : ISO-4113 Combination no. : 0 401 849 735 Injection pump Pump designation : PE10P120A520/4LS3843 EP type number : 0 411 829 707 Governor Governor design. : RQV300...1000PA838 Governer no. : 0 421 813 585 Customer-spec. information Customer : MAN : D2840LF/460 Engine 1st version kW : 338.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. ., C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening : 207...210 pressure, bar Orifice plate : 0,8 diameter mm Test lines : 1 680 750 067 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00 Firing order : 10-9-4-1-- 6-3-5-: 0-45-72-117-144-189-Phasing 216-261-288-333 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 10 BASIC SETTING rpm : 1000 1st speed Rack travel in mm : 11.30...11.40 Del.guantity cm3/: 20.4...20.6 100 s: (20.1...20.9) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.00...1.40 travel mm rpm : 500 2nd speed : 3.10...3.50 travel mm : 850 3rd speed rpm : 6.60...6.90 travel mm : 1000 4th speed man travel mm : 7.70...7.90 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Aneroid pressure h: 1000

: 3.90...4.00

: (3.85...4.05)

7

Prestroke mm

Del.quantity 1000 : 204.0...206.0 : (201.0...209.0) : 5.00 Spread cm3 (9.00) 1000 RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 10.30 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 : 1115...1145 Speed rom 4th rack travel in: 1250 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 13...21 Testina: Speed : 100 rpm Minimum rack trave: 7.60 rpm : 300 Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 335...445 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1000 : 11.30...11.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 380 Rack travel in m: 10.40...10.50 3rd pressure hPa : 500 Rack travel in m: 10.90...11.10 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) LOW IDLE : 300 Speed rom Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

: MAN-NR. 2-7779

1st version

: 4.20...4.30 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.15...4.35) Note remarks Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1-- 6- 3- 5-Firing order 8- 7 Test sheet : MAN 17,4 c1 : 28.04.89 Edition Replaces Test oil : ISO-4113 Phasing : 0-45-72-117-144-189-Combination no. : 0 401 849 744 216-261-288-333 Tolerance + - ... : 0.50 (0.75)Injection pump Pump designation : PE10P120A520/4LS3833 Time to cyl. no. : 10 EP type number : 0 411 829 706 BASIC SETTING Governor Governor design. : RQ750PA663-7 Governer no. : 0 421 801 331 rpm: 700 1st speed Rack travel in mm : 12.30...12.40 Customer-spec. information Customer : MAN Del.guantity cm3/: 22.9...23.1 Engine : D2840 LE 100 s: (22.6...23.4) 1st version kW : 352.0 Rated speed : 1500 Spread cm3 : 0.5100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0
Rack travel in mm : 6.1...6.3
Del.quantity cm3/ : 1.4...2.0 Test oil inlet temp. , C : 38...42 100 s: (1.1...2.3) Overflow valve : 1 417 413 025 cm3 : 0.8Spread 100 s: (1.2) Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 1 688 901 019 1st version rpm : 700 Speed : 229.0...231.0 Opening Del.quantity 1000 : (226.0...234.0) pressure, bar : 207...210 cm3 : 5.00 Spread 1000 : (9.00) Orifice plate diameter mm : 0,8 RATED SPEED Test lines : 1 680 750 067 1st version Outside diameter Testing: x Wall thickness 1st rack travel in: 11.30 x Length mm : 6.00X1.50X1000 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 790...803 (A) Injection pump setting values Speed 4th rack travel in: 950 Insp. values in parentheses Set equal delivery quant. : 0.00...1.00 Speed rpm per values ____

STARTING FUEL DELIVERY

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Speed

rpm : 100

Remarks:

: MAN-NR. 2-7975

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 17,4 d : 23.06.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 849 744 Injection pump Pump designation : PE10P120A520/4LS3849 : 0 411 829 708 EP type number Governor Governor design. : RQ750PA663-7 : 0 421 801 331 Governer no. Customer-spec. information : MAN Customer : D2840 LE Engine : 352.0 1st version kW : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. _ C . : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 4.20...4.30 : (4.15...4.35) Rack travel in mm : 9.00...12.00 Firing order : 10-9-4-1--6-3-5-7 Phasing : 0-45-72-117-144-189-216-261-288-333 Tolerance $+ - \dots : 0.50 (0.75)$ Time to cyl. no. : 10 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.30...12.40 Del.guantity cm3/: 22.9...23.1 100 s: (22.6...23.4) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 300.0Rack travel in mm: 4.3...4.7 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8100 s: (1.2) FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 : 229.0...231.0 Del.quantity : (226.0...234.0) 1000 : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Testing: 1st rack travel in: 11.30 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 790...803 Speed 4th rack travel in: 950 : 0.00...1.00 Speed man STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

: MAN-NR. 2-7975

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : STE 9,7 a : 28.06.89 Test sheet Edition : 8.83 Replaces : ISO-4113 Test oil Combination no. : 0 401 856 702 Injection pump Pump designation : PE6P110A721RS3102 EP type number : 0 411 816 726 Governor Governor design. : RQV250...1200PA257-1 Governer no. : 0 421 813 334 Customer-spec. information Customer : STEYR Engine : WD615.84 : 191.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening | pressure, bar : 172...175 Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___

: 0-60-120-180-240-300 Phasina Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm : 1200 1st speed Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 15.1...15.3 100 s: (14.8...15.6) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 250.0 Rack travel in mm : 7.0...7.2 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) cm3 : 0.4Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 0.90...1.30 travel mm rpm : 400 2nd speed : 2.30...2.70 travel mm rpm : 800 3rd speed : 4.40...5.00 travel mm : 1240 4th speed rom : 8.10...8.30 travel mm rpm : 1325 5th speed : 9.40...9.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1250 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 700 Del.quantity : 751.0...156.0)

Firing order

: 1-5-3-6-2-4

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90 : (2.75...2.95)

cm3 : 4.00 1000 : (8.00) Spread RATED SPEED 1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 11.60 Speed rpm : 1240...1250 2nd rack travel in: 4.00 rpm : 1310...1340 Speed 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 13...21 Testing: Speed man : 100 Minimum rack trave: 8.50 Speed rpm : 250 Rack travel in mm : 7.00...7.20 CONSTANT REGULATION rpm : 250...400 Speed Aneroid/Altitude Compensator Test 1st version Settina rpm : 500 hPa : 700 Speed Pressure Rack travel mm : 12.60...12.70 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.20...10.30 2nd pressure hPa : 460 Rack travel in m: 12.00...12.10 3rd pressure hPa : 330 Rack travel in m: 10.80...11.00 START CUT-OUT

1/min: 170 (190)

FUEL DELIVERY CHARACTERISTICS

rpm : 700

Aneroid pressure h: 700

Speed

Speed

A16

1st version

Del.quantity cm3/: 147.0...151.0 1000 s: (144.0...154.0) Aneroid pressure h: -Speed rpm: 700 Del.quantity cm3/: 99.0...103.0 1000 s: (96.0...106.0) BREAKAWAY

full load rack tr: 11.60 Speed rpm : 1240...1250

STARTING FUEL DELIVERY

1mm rack travel less than

Speed rpm : 100 Del.quantity cm3/: 210.0...240.0

Remarks:
APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MWM 21,6 a4 : 24.02.89 Edition : 6.4.88 Replaces : ISO-4113 Test oil : 0 401 870 091 Combination no. Injection pump Pump designation : PE12P120A520/5RS428-: 0 411 820 034 EP type number Governor Governor design. : RSUV300...900P0A320-: 0 421 829 107 Governer no. Customer-spec. information Customer : MWM : TBD 234 V12 Engine 1st version kW : 600.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1- 2- 9- 10- 5- 6-11- 12- 3- 4- 7- 8 : 0-30-60-90-120-150-Phasing 180-210-240-270-300-330 Tolerance + - ... : 0.50 (0.75)BASIC SETTING 1st speed rpm: 750Rack travel in mm : 13.70...13.80 Del.guantity cm3/: 24.9...25.1 100 s: (24.6...25.4) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 300.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 2.0...2.6 100 s: (1.7...2.9) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 3.75 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed : 249.0...251.0 Del.quantity 1000 : (246.0...254.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 65...73

Test pressure, bar: 25...27

per values

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

Testina: 1st rack travel in: 12.70 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 965...995 Speed 4th rack travel in: 1130 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring 300 Speed rpm Rack travel in mm : 5.3
Speed rpm : 300
Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 : 320...380 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 13.70...13.80 2nd speed rpm : 450 Rack travel in m: 13.70...13.80 : 280 3rd speed rpm Rack travel in m: 14.90...15.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70 : 940...950 Speed rpm STARTING FUEL DELIVERY Speed : 100 rpm LOW IDLE : 300 rpm Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: **APPLICATION** Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 h 1 Edition : 23.06.89

Replaces

Test oil : ISO-4113

: 0 401 876 220 Combination no.

Injection pump

Pump designation : PE6P100A320LS805 : 0 411 806 148 EP type number

Governor

Governor design. : RSV575...1250P1A817

: 0 421 833 322 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 401 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 3.40...3.50 Prestroke mm

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

Phasina : 0-45-120-165-240-285

Tolerance $+ - \dots : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 575.02nd speed

Rack travel in mm : 6.0...6.3

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1230 Speed

: 93.0...95.0 Del.quantity

1000 : (91.0...97.0)

: 3.00 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testina:

1st rack travel in: 9.10

Speed rpm : 1265...1275 2nd rack travel in: 4.10

: 1290...1305 Speed rpm : 0.30...1.40 Speed rpm

LOW IDLE 1

Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 575 Rack travel in mm : 4.7 Speed rpm: 575
Rack travel in mm: 4.60...4.80
Rack travel in mm: 2.00
Speed rpm: 570...630

SET IDLE AUXILIARY SPRING

Speed rpm : 575 Rack travel in mm : 1.50...2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.10

rpm : 1265...1275 Speed

STARTING FUEL DELIVERY

Del.quantity cm3/: 120.0...140.0 1000 s: (116.0...144.0)

HIGH IDLE

1st version

Rack travel in mm : 4.00...4.20 Spread cm3 : 4.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS 1st speed rpm: 1200 Rack travel in mm : 10,50...10,60 Note remarks Test sheet : PEN 7,0 L Del.guantity cm3/: 9,1...9,3 Edition : 18.07.89 100 s: (8,8...9,6) Replaces : ISO-4113 Test oil cm3 : 0.4Spread Combination no. : 0 401 876 232 100 s: (-) Injection pump 2nd speed rpm : 200 Rack travel in mm : 8,60...8,70 Pump designation: PE6P110A320RS374 Governor Del.quantity cm3/: 1,7...2,7 100 s: (-) Governor design. : RSV200...1200P1/365R Customer-spec. information : VOLVO-PENTA GUIDE SLEEVE POSITION Customer Control-lever position : TMD 70 C Degree: -3 Engine Speed rpm: 800 Rack travel in mm: 0,30...0,70 Speed TEST BENCH REQUIREMENTS Test oil Governor spring pre-tension inlet temp., C : 38...42 Click setting x : ? Inlet press., bar: 1.5 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 1st version Speed rpm : 1200 Del.quantity : 91,0...93,0 1000 : (88,0...96,0) Openina cm3 : 4,0 1000 : (-) pressure, bar : 172...175 Spread Test Lines : 1 680 750 015 RATED SPEED Outside diameter 1st version x Wall thickness Control lever : 6,00x1,50x600 x Lenath mm position degrees: 64...72 (A) Injection pump setting values Testina: 1st rack travel in: 9,50 Insp. values in parentheses Speed rpm : 1240...1250 Set equal delivery quant. 2nd rack travel in: 4,00 Speed rpm: 1295...1325 4th rack travel in: 1400 per values ____ BEGINNING OF DELIVERY Speed rpm : 0,30...1,70 : 3,0...3,1 : (2,95...3,15) Prestroke mm LOW IDLE 1 Rack travel in mm : 9,00...12,00 Firing order : 1-5-3-6-2-4 Control lever position degrees: 22...30 Setting point w/out bumper spring

Phasing : 0-60-120-180-240-300 Tolerance + -, : 0,50 (0,75)

BASIC SETTING

Testing: Speed rpm : 100 Minimum rack trave: 20,00 rpm : 200 Speed

Rack travel in mm: 8,10

rpm : 200

Rack travel in mm: 8,60...8,70
Rack travel in mm: 2,00
Speed rpm: 390...450
Speed rpm: 550
Maximum rack trave: 1,00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9,50 Speed rpm : 1240...1250

HIGH IDLE

1st version

rpm : 1310 Speed

Rack travel in mm : 4,00...4,10

LOW IDLE

Speed rpm : 200 Del.quantity cm3/ : 19...29 1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: DAF 8,3 o11 Test sheet : 21.04.89 Edition : 12.9.86 Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 316

Injection pump

Pump designation : PE6P100A720RS447 : 0 411 806 191 EP type number

Governor

: RSV250...1200P5A509-Governor design.

: 0 421 833 199 Governer no.

Customer-spec. information Customer

: DHT 825 Engine

: 162.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.30 (0.75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed

Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 700

: 118.5...120.5 Del.quantity 1000 : (116.5...122.5) cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

1st version Control Lever

position degrees: 58...66

Testing:

1st rack travel in: 10.40

rpm : 1240...1250 Speed

2nd rack travel in: 4.00 rpm : 1300...1330 Speed

3rd rack travel in: 4.00 Speed rpm : 1325...1355 4th rack travel in: 1530 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 4.8 Speed rpm : 250
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00 : 540...640 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 11.60...11.70 rpm : 400 2nd speed Rack travel in m: 11.60...11.80 3rd speed rpm : 300 Rack travel in m: 11.90...12.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 700 Rack travel mm : 11.40...11.50 Measurement $1/\min : 600$ Speed 1st pressure hPa : -Rack travel in m: 10.40...10.60 2nd pressure hPa : 315 Rack travel in m: 11.10...11.20 3rd pressure hPa : 225 Rack travel in m: 10.50...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -

rpm : 600 Speed Del.quantity cm3/: 92.5...96.5 1000 s: (90.0...99.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...14.5) Spread cm3 : 3.50

1000 s: (5.50)

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VOL 7,1 c : 24.02.89 Test sheet Edition Replaces Test oil : 12.9.86 : ISO-4113 Combination no. : 0 401 876 321 Injection pump Pump designation: PE6P110A320RS497 : 0 411 816 165 EP type number Governor : RSV200...1200P1A374-Governor design. : 0 421 833 204 Governer no. Customer-spec. information : VOLVO Customer : TD71A Engine TEST BENCH REQUIREMENTS Test oil inlet temp. , C . : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness

Spread Spread Speed Speed : 6.00X1.50X600 x Length mm Spread (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: : 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Tolerance + - 1 = 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm : 700 1st speed Rack travel in mm : 11.80...11.90 Del.quantity cm3/: 11.6...11.8 100 s: (11.3...12.1) cm3 : 0.4100 s: (0.7) 2nd speed rpm : 200.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.6...2.2 100 s: (-) cm3 : 0.3100 s: (0.6) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.25 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Aneroid pressure h: 900 Del.quantity : 110.0...121.0) cm3 : 4.001000 : (7.50) RATED SPEED 1st version Control lever position degrees: 51...59 1st rack travel in: 10.80 Speed rpm : 1210...1220 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1410

: 0-60-120-180-240-300

Phasing

rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm: 200
Rack travel in mm: 5.0
Speed rpm: 200
Rack travel in mm: 5.40...5.60
Rack travel in mm: 2.00 : 280...340 Speed rom Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 900 Pressure : 11.80...11.90 Rack travel mm Measurement $1/\min : 500$ beea 1st pressure hPa : -Rack travel in m: 9.80...10.00 2nd pressure hPa : 675 Rack travel in m: 11.60...11.70 3rd pressure hPa : 200 Rack travel in m: 10.10...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 700 Speed Del.quantity cm3/: 82.0...85.0 1000 s: (79.0...88.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 1210...1220 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 160.0...190.0 1000 s: (160.0...190.0) Rack travel in mm : 20.00...21.00

LOW IDLE

A26

Speed rpm : 200
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 16.0...22.0
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PEN 6,1 q Edition : 10.02.89 Phasing : 0-60-120-180-240-300 : 9.12.88 Replaces Tolerance + - ... : 0.50 (0.75)Test oil : ISO-4113 Combination no. : 0 401 876 327 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE6P110A320RS499 : 0 411 816 169 EP type number 1st speed rpm: 1000 Governor Governor design. : RSV325...1400P2A374-: 0 421 833 220 Governer no. Customer-spec. information : VOLVO-PENTA Customer Spread Engine : TAMD61A 1st version kW : 220.0 : 2800 Rated speed 2nd speed TEST BENCH REQUIREMENTS Test oil Spread inlet temp. , C : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 417 413 025 Control-lever position Inlet press., bar: 1.50 Speed Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 1st version Test lines : 1 680 750 015 Speed Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm Spread (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version Control lever

Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 12.0...12.2 100 s: (11.7...12.5) cm3 : 0.4100 s: (0.7) rpm : 325.0 Rack travel in mm : 4.1...4.3 Del.guantity cm3/: 1.1...1.5 100 s: (0.9...1.7) cm3 : 0.3100 s: (0.6) Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 6.00 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1000 Aneroid pressure h: 900
Del.quantity : 120.5...122.5
1000 : (117.5...125.5) cm3 : 4.00 1000 : (7.50) position degrees: 50...58 Testina: 1st rack travel in: 10.10 rpm : 1450...1460 Speed

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2.50...2.60

: (2.45...2.65)

2nd rack travel in: 4.00 rpm : 1530...1560 Speed 4th rack travel in: 1630 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 3.7 Speed rpm : 325 Rack travel in mm : 4.10...4.30 Rack travel in mm : 2.00 Speed rpm : 380...440 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 900 Pressure : 11.00...11.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.50...8.70 2nd pressure hPa : 360 Rack travel in m: 8.70...8.80 3rd pressure hPa : 730 Rack travel in m: 10.70...10..80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1400 Speed Del.quantity cm3/: 122.5...126.5 1000 s: (119.5...129.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 54.5...58.5 1000 s: (51.5...61.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1450...1460 Speed

Speed rpm : 100
Del.quantity cm3/ : 135.0...165.0
1000 s: (-)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

APPLICATION

3

Navy

STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 10,1 f : 24.02.89 : 25.3.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 876 332 Injection pump Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Customer-spec. information Customer : ENASA Engine : 95 T1 AX, TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening | pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Phasing : 0-60-120-180-240-300 Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 750 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 11.3...11.5 100 s: (11.1...11.7) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed : 113.0...115.0 Del.quantity 1000 : (111.0...117.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 40...48 Testing: 1st rack travel in: 10.90 Speed rpm: 790...800 2nd rack travel in: 4.00 Speed rpm: 825...855 3rd rack travel in: 4.00 rpm : 835...865 Speed 4th rack travel in: 1000

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 2.80...2.90

: (2.75...2.95)

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travet in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00 rpm : 330...390 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 750 1st speed Rack travel in m: 11.90...12.00 2nd speed rpm : 450 Rack travel in m: 11.90...12.00 3rd speed rpm : 290 Rack travel in m: 13.20...13.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 790...800 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity_cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10 Remarks: APPLICATION Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f1 Edition : 24.02.89

: 7.10.88 Replaces : ISO-4113 Test oil

Combination no. : 0 401 876 332A

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RSV250...1000P1A532

: 0 421 833 273 Governer no.

Customer-spec. information : ENASA Customer

: 95 A1 COMR 400 Engine

1st version kW : 125.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

B03

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 11.0...11.2

100 s; (10.8...11.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.02nd speed Rack travel in mm: 7.9...8.1

Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 110.0...112.0

1000 : (108.0...114.0) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.40 Speed rpm : 1060...1065

2nd rack travel in: 4.00

rpm : 1090...1120 Speed

3rd rack travel in: 4.00 Speed rpm : 1100...1130 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm : 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 : 200 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 310...370 TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 11.40...11.50 2nd speed rpm : 450 Rack travel in m: 11.40...11.50 3rd speed rpm : 250 Rack travel in m: 12.60...13.20 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1060...1065 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 200 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : ENA 10,1 f2 : 24.02.89 Edition Replaces Test oil : ISO-4113 : 0 401 876 332B Combination no. Injection pump Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number Governor Governor design. : RSV250...1000P1A532 : 0 421 833 273 Governer no. Customer-spec. information Customer : ENASA Engine : 95 A1 COML 4 1st version kW : 114.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. _ C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

```
Phasing
                    : 0-60-120-180-240-300
Tolerance + - ... : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
               rpm : 1000
1st speed
Rack travel in mm : 11.00...11.10
Del.quantity cm3/: 10.0...10.2
              100 s: (9.8...10.4)
              cm3 : 0.3
Spread
              100 s: (0.6)
2nd speed
              rpm : 250.0
Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3
              100 s: (0.5)
GUIDE SLEEVE POSITION
Control-lever position
             Degree: -3
Speed rpm: 800
Rack travel in mm: 0.30...0.70
Governor spring pre-tension
Click setting x : 4.50
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
              rpm : 1000
Speed
                    : 100.0...102.0
Del.quantity
             1000 : (98.0...104.0)
                    : 3.50
             cm3
Spread
             1000 : (6.00)
RATED SPEED
1st version
Control lever
position degrees: 49...57
Testing:
1st rack travel in: 10.00
             rom : 1010...1015
  Speed
2nd rack travel in: 4.00
             rpm : 1040...1070
  Speed
```

: 1-5-3-6-2-4

per values

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

BEGINNING OF DELIVERY

Prestroke mm

3rd rack travel in: 4.00 rpm : 1050...1080 Speed 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm: 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 : 200 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 310...370 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 11.00...11.10 rpm : 450 2nd speed Rack travel in m: 11.00...11.10 3rd speed rpm : 250 Rack travel in m: 12.20...12.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1010...1015 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 200 Rack travel in mm : 5.90...6.10 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1 f3 Edition : 24.02.89 Replaces : ISO-4113 Test oil Combination no. : 0 401 876 332c Injection pump Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179 Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Customer-spec. information Customer : ENASA : 95 AI COEB 2 Engine 1st version kW : 113.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. ., C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance $+ - \dots : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 11.60...11.70 Del.quantity cm3/: 10.9...11.1 100 s: (10.7...11.3) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed : 109.0...111.0 Del.quantity 1000 : (107.0...113.0) : 3.50 cm3 Spread : (6.00) 1000 RATED SPEED 1st version Control Lever position degrees: 44...52 Testina: 1st rack travel in: 10.60

Speed rpm : 905...910

rpm : 935...965

2nd rack travel in: 4.00

Speed

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

B07

3rd rack travel in: 4.00 rpm : 945...975 Speed 4th rack travel in: 1100 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.5 Testina: Speed : 100 rpm Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 340...400 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 11.60...11.70 2nd speed rpm : 450 Rack travel in m: 11.60...11.70 3rd speed rpm : 290 Rack travel in m: 12.80...13.40 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 905...910 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10 Remarks:

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1 f4 : 0-60-120-180-240-300 Phasing : 24.02.89 Edition Tolerance + - ... : 0.50 (0.75)Replaces Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 401 876 332b BASIC SETTING Injection pump Pump designation : PE6P100A820LS130 1st speed rpm : 750 : 0 411 806 179 EP type number Rack travel in mm : 11.60...11.70 Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Del.quantity cm3/: 10.7...10.9 Customer-spec. information 100 s: (10.5...11.1) Customer : ENASA Spread cm3 : 0.3Engine : 95 A1 COEB 1 100 s: (0.6) 1st version kW : 97.0 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 : 2000 Rated speed Del.quantity cm3/: 1.8...2.2 TEST BENCH REQUIREMENTS 100 s: (1.5...2.4) cm3 : 0.3 Test oil Spread inlet temp. _, C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 025 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder assembly : 0 681 343 009 Governor spring pre-tension Click setting x : 4.50Openina pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 rpm : 750 Speed : 107.0...109.0 Del.quantity 1000 : (105.0...111.0) Outside diameter : 3.50 x Wall thickness cm3 Spread 1000 : (6.00)x Length mm : 6.00x1.50x600 (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 38...46 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 10.60 Speed rpm: 755...760 2nd rack travel in: 4.00 : 2.80...2.90 Prestroke mm : (2.75...2.95)
Rack travel in mm : 9.00...12.00 rpm : 780...810

B₀9

Speed

3rd rack travel in: 4.00 rpm : 790...820 Speed 4th rack travel in: 1000 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 330...390 Speed man TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.60...11.70 rpm : 450 2nd speed Rack travel in m: 11.60...11.70 d speed rpm : 300 Rack travel in m: 12.80...13.40 3rd speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 Speed rpm : 755...760 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed : 250 man Rack travel in mm : 5.90...6.10 Remarks:

: 1-5-3-6-2-4 Firing order BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : 0-60-120-180-240-300 Test sheet : ENA 10,1 f5 Phasina Edition : 24.02.89 Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 0 401 876 332E BASIC SETTING Injection pump Pump designation : PE6P100A820LS130 1st speed rpm: 950 : 0 411 806 179 EP type number Rack travel in mm : 14.10...14.20 Governor Governor design. : RSV250...1000P1A532 : 0 421 833 273 Del.quantity cm3/: 16.2...16.4 Governer no. 100 s: (16.0...16.6) Customer-spec. information Customer : ENASA Spread cm3 : 0.3: 95 T1 ADML 4 Engine 100 s: (0.6) 1st version kW : 158.0 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Rated speed : 2000 Del.quantity cm3/ : 1.8...2.2 TEST BENCH REQUIREMENTS 100 s: (1.5...2.4) cm3 : 0.3 100 s: (0.5) Test oil Spread inlet temp. , C : 38...42 GUIDE SLEEVE POSITION Overflow valve : 1 417 413 025 Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : 4.50Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version : 1 680 750 015 rpm : 950 Test Lines Speed : 162.0...164.0 Del quantity 1000 : (160.0...166.0) Outside diameter : 3.50 x Wall thickness Spread cm3 1000 : (6.00) : 6.00X1.50X600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 47...55 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 13.10 : 2.80...2.90 Speed rpm : 960...965 Prestroke mm : (2.75...2.95) 2nd rack travel in: 4.00

rpm : 1000...1030

Speed

Rack travel in mm : 9.00...12.00

3rd rack travel in: 4.00 rpm : 1010...1040 Speed 4th rack travel in: 1200 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm : 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 Speed : 200 rpm Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00 Speed rpm: 320...380 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 950 Rack travel in m: 14.10...14.20 2nd speed rpm : 450 Rack travel in m: 14.10...14.20 3rd speed rpm : 250 Rack travel in m: 15.30...15.90 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.10 Speed rpm : 960...965 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 200 Rack travel in mm : 5.90...6.10

Remarks:

B12

Firing order : 1-5-3-6-2-4BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1 f6 Phasing : 0-60-120-180-240-300 Edition : 24.02.89 Replaces Tolerance + - ... : 0.50 (0.75)Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 401 876 332F BASIC SETTING Injection pump Pump designation : PE6P100A820LS130 rpm: 900 1st speed : 0 411 806 179 EP type number Rack travel in mm : 14.20...14.30 Governor Governor design. : RSV250...1000P1A532 : 0 421 833 273 Governer no. Del.guantity cm3/: 16.3...16.5 100 s: (16.1...16.7) Customer-spec. information Customer : ENASA Spread cm3 : 0.3Engine : 95 T1 A0EA 2 100 s: (0.6) 1st version kW : 147.0 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 : 2000 Rated speed Del.quantity cm3/: 1.8...2.2 TEST BENCH REQUIREMENTS 100 s: (1.5...2.4) cm3 : 0.3 100 s: (0.5) Test oil Spread inlet temp. , C : 38...42 GUIDE SLEEVE POSITION Overflow valve : 1 417 413 025 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder assembly : 0 681 343 009 Governor spring pre-tension Click setting x : 4.50 Openina | FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Test lines rpm : 900 : 1 680 750 015 Speed Del.quantity : 163.0...167.0) Spread cm3 : 3.50 1000 : (6.00) Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 45...53 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 13.20 Speed rpm : 905...910 Prestroke mm : 2.80...2.90 : (2.75...2.95) 2nd rack travel in: 4.00

rpm : 935...965

Speed

Rack travel in mm : 9.00...12.00

3rd rack travel in: 4.00 rpm : 945...975 Speed 4th rack travel in: 1150 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 340...400 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 14.20...14.30 rpm : 450 2nd speed Rack travel in m: 14.20...14.30 3rd speed rpm : 290 Rack travel in m: 15.40...16.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.20 rpm : 905...910 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 10,1 f7 : 24.02.89 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 876 3326 Injection pump Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179 Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Customer-spec. information : ENASA Customer Engine : 95 T1 AOEB 1 1st version kW : 146.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 B15

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - \dots : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm : 750 1st speed Rack travel in mm : 14.40...14.50 Del.guantity cm3/: 16.7...16.9 100 s: (16.5...17.1) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed : 167.0...169.0 Del.quantity 1000 : (165.0...171.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 39...47 Testing: 1st rack travel in: 13.40 Speed rpm : 755...760 2nd rack travel in: 4.00 rpm : 780...810 Speed

3rd rack travel in: 4.00 rpm : 790...820 Speed 4th rack travel in: 1000 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm: 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 330...390 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 14.40...14.50 rpm : 450 2nd speed Rack travel in m: 14.40...14.50 3rd speed rpm : 300 Rack travel in m: 15.60...16.20 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 755...760 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f8 : 24.02.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 876 332H

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RSV250...1000P1A532

Governer no. : 0 421 833 273

Customer-spec. information Customer : ENASA

: 95 A1 COIB 4 Engine

1st version kW : 120.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

B17

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 11.5...11.7

100 s: (11.3...11.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Del.quantity : 115.0...117.0 1000 : (113.0...119.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.80

rpm : 1010...1015 Speed

2nd rack travel in: 4.00

rpm : 1040...1070 Speed

3rd rack travel in: 4.00 rpm : 1050...1080 Speed 4th rack travel in: 1250 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm : 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.50 Speed rpm : 200 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 310...370 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.80...11.90 rpm : 450 2nd speed Rack travel in m: 11.80...11.90 3rd speed rpm : 250 Rack travel in m: 13.00...13.60 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.80 Speed rpm : 1010...1015 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 200 Rack travel in mm : 5.90...6.10 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : ENA 10,1 f9 Edition : 24.02.89

Replaces : ISO-4113 Test oil

Combination no. : 0 401 876 332K

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RSV250...1000P1A532

: 0 421 833 273 Governer no.

Customer-spec. information : ENASA Customer

: 95 T1 AOIB 4 Engine

1st version kW : 165.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C . : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 950

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.3...16.5

100 s: (16.1...16.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3.

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

Del.quantity : 163.0...167.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 47...55

Testina:

1st rack travel in: 13.20 Speed rpm : 960...965 2nd rack travel in: 4.00

rpm : 1000...1030 Speed

B19

3rd rack travel in: 4.00 Speed rpm: 1010...1040 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 200 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed : 320...380 rpm TORQUE CONTROL Torque control curve - 1st version rpm : 950 1st speed Rack travel in m: 14.20...14.30 rpm : 450 2nd speed Rack travel in m: 14.20...14.30 3rd speed rpm : 250 Rack travel in m: 15.40...16.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.20 Speed rpm : 960...965 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed : 200 rpm Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: ENA 10,1f10 : 24.02.89 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 876 332L

Injection pump

Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number

Governor

Governor design. : RSV250...1000P1A532

Governer no. : 0 421 833 273

Customer-spec. information Customer : ENASA

: 95 T1 AOIR 43 Engine

1st version kW : 166.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp.., C . : 38...42

Overflow valve

: 1 417 413 D25

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 14.10...14.20

Del.guantity cm3/: 16.3...16.5

100 s: (16.1...16.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Del.quantity : 163.0...165.0 1000 : (161.0...167.0) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 13.10 Speed rpm: 1010...1015 2nd rack travel in: 4.00

rpm : 1045...1075 Speed

B21

3rd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring Speed rpm : 200 Rack travel in mm : 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.50 : 200 rom Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 14.10...14.20 rpm : 450 2nd speed Rack travel in m: 14.10...14.20 3rd speed rpm : 250 Rack travel in m: 15.30...15.90 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.10 Speed rpm : 1010...1015 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm: 19.00...21.00 LOW IDLE : 200 rpm Rack travel in mm : 5.90...6.10 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 10,1f11 Test sheet : 24.02.89 Edition Replaces Test oil : ISO-4113 : 0 401 876 332M Combination no. Injection pump Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179 Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Customer-spec. information Customer : ENASA : 9105,42,25,43 Engine : 132.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. .. C . : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina . pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

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Firing order : 1-5-3-6-2-4
                  : 0-60-120-180-240-300
Phasing
Tolerance + - ... : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
              rpm: 900
1st speed
Rack travel in mm : 11.70...11.80
Del.guantity cm3/: 11.1...11.3
             100 s: (10.9...11.5)
Spread
             cm3 : 0.3
             100 s: (0.6)
2nd speed
             rpm : 250.0
Rack travel in mm : 7.9...8.1
Del.quantity cm3/: 1.8...2.2
             100 s: (1.5...2.4)
             cm3 : 0.3
Spread
             100 s: (0.5)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -3
             rpm : 800
Rack travel in mm : 0.30...0.70
Governor spring pre-tension
Click setting x : 4.50
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
             rpm : 900
                  : 111.0...113.0
Del.quantity
            1000 : (109.0...115.0)
                  : 3.50
Spread
            cm3
            1000 : (6.00)
RATED SPEED
1st version
Control lever
 position degrees: 47...55
Testing:
1st rack travel in: 10.70
Speed rpm : 965...975
2nd rack travel in: 4.00
            rpm : 1000...1030
  Speed
```

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

3rd rack travel in: 4.00 Speed rpm : 1010...1040 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 200 Speed Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed : 200 rpm Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 320...380 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 11.70...11.80 2nd speed rpm : 450 Rack travel in m: 11.70...11.80 3rd speed rpm : 250 Rack travel in m: 12.90...13.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 965...975 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 200 Rack travel in mm : 5.90...6.10 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1f12 Edition : 24.02.89 Replaces Test oil : ISO-4113 Combination no. : 0 401 876 332N Injection pump Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179 Governor Governor design. : RSV250...1000P1A532 : 0 421 833 273 Governer no. Customer-spec. information Customer : ENASA : 9100.14.25.32 Engine 1st version kW : 125.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. . C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina | pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Lenath mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Phasing : 0-60-120-180-240-300 Tolerance $+ - \frac{1}{4} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm : 1000 1st speed Rack travel in mm : 11.60...11.70 Del.quantity cm3/: 11.0...11.2 100 s: (10.8...11.4) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Del.quantity : 110.0...114.0)
1000 : (108.0...114.0)
1000 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 10.60 rpm : 1010...1020 Speed 2nd rack travel in: 4.00 rpm : 1045...1055 Speed

Firing order : 1-5-3-6-2-4

per values

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

BEGINNING OF DELIVERY

Prestroke mm

3rd rack travel in: 4.00 Speed rpm : 1055...1085 4th rack travel in: 1250 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 340...400 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.60...11.70 rpm : 450 2nd speed Rack travel in m: 11.60...11.70 3rd speed rpm : 250 Rack travel in m: 12.80...13.40 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1010...1020 Speed STARTING FUEL DELIVERY rpm : 100 beea Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1f13 : 24.02.89 Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 876 332R Injection pump Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number Governor Governor design. : RSV250...1000P1A532 : 0 421 833 273 Governer no. Customer-spec. information Customer : ENASA : 9100.04 Engine : 107.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. . C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Phasing : 0-60-120-180-240-300 Time to cyl. no. : 1 BASTC SETTING 1st speed rpm: 900 Rack travel in mm : 11.40...11.50 Del.guantity cm3/: 10.4...10.6 100 s: (10.2...10.8) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 250.0Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed : 104.0...106.0 Del.quantity 1000 : (102.0...108.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 10.40 Speed rpm: 915...925 2nd rack travel in: 4.00 rpm : 950...960 Speed

Firing order

: 1-5-3-6-2-4

B27

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 9.00...12.00

3rd rack travel in: 4.00 rpm : 960...990 Speed 4th rack travel in: 1150 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.5 Testina: Speed : 100 rpm Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 340...400 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 11.40...11.50 2nd speed rpm : 450 Rack travel in m: 11.40...11.50 3rd speed rpm : 250 Rack travel in m: 12.60...13.20 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: ENA 10,1f14 Test sheet Edition : 24.02.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 876 332s

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RSV250...1000P1A532

Governer no. : 0 421 833 273

Customer-spec. information Customer : ENASA

: 9105.05 Engine

1st version kW : 86.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. _ C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ., . : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 750

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.6...11.8

100 s: (11.4...12.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 116.0...118.0 Del.quantity 1000 : (114.0...120.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.10 rpm : 760...770 Speed 2nd rack travel in: 4.00

rpm : 775...805 Speed

CO1

3rd rack travel in: 4.00 rpm : 785...815 Speed 4th rack travel in: 1000 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.5 Testing: Speed : 100 rpm Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 330...390 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 750 1st speed Rack travel in m: 12.10...12.20 2nd speed rpm : 450 Rack travel in m: 12.10...12.20 3rd speed rpm : 290 Rack travel in m: 13.30...13.90 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 760...770 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1f15 Edition : 24.02.89 Replaces : ISO-4113 Test oil : 0 401 876 332T Combination no. Injection pump Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number Governor Governor design. : RSV250...1000P1A532 Governer no. : 0 421 833 273 Customer-spec. information Customer : ENASA : 9109.04 Engine 1st version kW : 140.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Rack travel in mm : 13.20...13.30 Del.guantity cm3/: 14.2...14.4 100 s: (14.0...14.6) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm: 7.9...8.1 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed : 142.5...144.5 Del.quantity 1000 : (140.5...146.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 44...52 Testing: 1st rack travel in: 12.00 Speed rpm : 915...925 2nd rack travel in: 4.00 Speed rpm : 945...975

Firing order : 1-5-3-6-2-4

Tolerance + - ... : 0.50 (0.75)

rpm: 900

Time to cyl. no. : 1

BASIC SETTING

1st speed

: 0-60-120-180-240-300

Phasing

CO3

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 2.80...2.90

: (2.75...2.95)

3rd rack travel in: 4.00 rpm : 955...985 Speed 4th rack travel in: 1150 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.5 Testina: rpm : 100 Speed Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm : 9.40...6.10 Rack travel in mm : 2.00 : 340...400 Speed man TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 13.20...13.30 rpm : 450 2nd speed Rack travel in m: 13.20...13.30 3rd speed rpm : 250 Rack travel in m: 14.40...15.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 915...925 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10 Remarks:

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 11,9 g1 Test sheet : 17.02.89 Edition Replaces : ISO-4113 Phasing : 0-60-120-180-240-300 Test oil Tolerance + - ... : 0.50 (0.75)Combination no. : 0 401 876 333A Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA32ORS257 EP type number : 0 411 826 075 BASIC SETTING Governor Governor design. : RSV250...1100P0A533 1st speed rpm: 1100 : 0 421 833 274 Governer no. Rack travel in mm : 11.80...11.90 Customer-spec. information Del.quantity cm3/: 22.9...23.1 Customer : ENASA : 96 T1AO 100 s: (22.6...23.4) Engine 1st version kW : 240.0 cm3 : 0.5Spread Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Test oil inlet temp. .. C : 38...42 Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-Lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 assembly : 1 688 901 019 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.50 Orifice plate diameter mm : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 : 229.0...231.0 Test Lines : 1 680 750 067 Speed Del.quantity : 229.0...234.0) Outside diameter : 5.00 x Wall thickness Spread cm3 1000 : (9.00) : 6.00x1.50x1000 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values position degrees: 41...49 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.80

rpm : 1115...1120 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 3rd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1350 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed : 250 rpm Rack travel in mm: 5.3 Testina: Speed rpm Minimum rack trave: 19.50 Speed rpm: 250
Rack travel in mm: 5.70...5.90
Rack travel in mm: 2.00
Speed rpm: 350...410 TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 11.80...11.90 2nd speed rpm : 450 Rack travel in m: 11.80...11.90 3rd speed rpm : 250 Rack travel in m: 13.00...13.60 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 1115...1120 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks: **APPLICATION** Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order : ENA 11,9 g2 Test sheet : 17.02.89 Edition Replaces : ISO-4113 Test oil Phasing Tolerance + -., .: 0.50 (0.75) Combination no. : 0 401 876 333B Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS257 : 0 411 826 075 EP type number BASIC SETTING Governor Governor design. : RSV250...1100P0A533 1st speed : 0 421 833 274 Governer no. Rack travel in mm : 11.60...11.70 Customer-spec. information Del.guantity cm3/: 22.3...22.5 Customer : ENASA : 96 T1A0 Engine : 228.0 1st version kW Spread : 2200 Rated speed TEST BENCH REQUIREMENTS 2nd speed Rack travel in mm : 5.7...5.9 Test oil Del.quantity cm3/: 1.7...2.3 inlet temp. , C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 assembly : 1 688 901 019 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.50 Orifice plate diameter mm : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 067 Speed Del.quantity 1000 Outside diameter x Wall thickness cm3 Spread : 6.00x1.50x1000 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses

: 1-5-3-6-2-4 : 0-60-120-180-240-300 rpm : 1100 100 s: (22.0...22.8) cm3 : 0.5100 s: (0.9) rpm : 250.0 100 s: (1.4...2.6) cm3 : 0.8 100 s: (1.2) rpm : 1100 : 223.0...225.0 : (220.0...228.0) : 5.00 1000 : (9.00) position degrees: 41...49 1st rack travel in: 10.60

1st version Control lever

Testing:

: 2.80...2.90 : (2.75...2.95)

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

: 1110...1115 Speed rom 2nd rack travel in: 4.00 : 1150...1180 Speed rpm 3rd rack travel in: 4.00 : 1160...1190 Speed rpm 4th rack travel in: 1350 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.3 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 Speed : 350...410 rpm TORQUE CONTROL Dimension a mm : 2.30 Torque control curve - 1st version : 1100 1st speed rpm Rack travel in m: 11.60...11.70 rpm : 450 2nd speed Rack travel in m: 11.60...11.70 3rd speed rpm : 250 Rack travel in m: 12.80...13.40 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1110...1115 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks: APPLICATION Special-purpose vehicle

c08

: 2.80...2.90 : (2.75...2.95) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order : ENA 11,9 g3 Test sheet : 17.02.89 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 : 0 401 876 333c Tolerance + - ... : 0.50 (0.75)Combination no. Time to cyl. no. : 1 Injection pump Pump designation : PE6P120A320RS257 : 0 411 826 075 BASIC SETTING EP type number Governor Governor design. : RSV250...1100P0A533 1st speed rpm: 900 Governer no. : 0 421 833 274 Rack travel in mm : 12.20...12.30 Customer-spec. information Del.quantity cm3/: 23.7...23.9 Customer : ENASA : 96 T1A0 100 s: (23.4...24.2) Engine cm3 : 0.5: 209.0 1st version kW Spread : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Test oil inlet temp. , C : 38...42 Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -3 rpm : 800 Test nozzle holder assembly : 1 688 901 019 Speed Rack travel in mm : 0.30...0.70 **Opening** : 207...210 pressure, bar Governor spring pre-tension Click setting x : 4.50 Orifice plate diameter mm : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Test lines : 1 680 750 067 Speed : 237.0...239.0 Del.quantity 1000 : (234.0...242.0) Outside diameter : 5.00 Spread x Wall thickness cm3 1000 : (9.00) : 6.00x1.50x1000 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever

position degrees: 36...44

1st rack travel in: 11.20

Testina:

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 905...910 Speed rpm 2nd rack travel in: 4.00 : 960...990 Speed rpm 3rd rack travel in: 4.00 rpm : 970...1000 Speed 4th rack travel in: 1150 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring Speed : 250 rpm Rack travel in mm : 5.3 Testina: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm: 5.70...5.90 Rack travel in mm: 2.00 Speed rpm: 350...410 TORQUE CONTROL Dimension a mm : 2.30 Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 12.20...12.30 rpm : 450 2nd speed Rack travel in m: 12.20...12.30 3rd speed rpm : 290 Rack travel in m: 13.40...14.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 905...910 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks: **APPLICATION**

Special-purpose vehicle

: 2.80...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : ENA 11,9 g4 : 17.02.89 Test sheet Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75): 0 401 876 333b Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS257 EP type number : 0 411 826 075 BASIC SETTING Governor Governor design. : R\$V250...1100P0A533 1st speed rpm: 750 : 0 421 833 274 Governer no. Rack travel in mm : 12.50...12.60 Customer-spec. information Del.guantity cm3/: 23.7...23.9 Customer : ENASA : 96 T1AO 100 s: (23.4...24.2) Engine cm3 : 0.51st version kW : 195.0 Spread : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Test oil inlet temp. , C : 38...42 Overflow valve Spread cm3 : 0.8100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 assembly : 1 688 901 019 Opening : 207...210 Governor spring pre-tension pressure, bar Click setting x : 4.50 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,8 1st version Test lines : 1 680 750 067 Speed rpm : 750 Del.quantity : 237.0...239.0 1000 : (234.0...242.0) Spread cm3 : 5.00 1000 : (9.00) Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values

Control lever

position degrees: 32...40

Testing:

1st rack travel in: 11.50

C11

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

rpm : 755...760 Speed 2nd rack travel in: 4.00 : 820...850 Speed rpm 3rd rack travel in: 4.00 : 830...860 Speed rpm 4th rack travel in: 1000 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm Rack travel in mm : 5.3 Testina: Speed rpm Minimum rack trave: 19.50 : 250 Speed rpm Rack travel in mm: 5.70...5.90
Rack travel in mm: 2.00
Speed rpm: 350...410 TORQUE CONTROL Torque control curve - 1st version rpm : 750 1st speed Rack travel in m: 12.50...12.60 2nd speed rpm : 450 Rack travel in m: 12.50...12.60 d speed rpm : 300 3rd speed Rack travel in m: 13.70...14.30 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 755...760 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks: **APPLICATION** Special-purpose vehicle

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 11,9 g5 Test sheet : 17.02.89 Edition Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Combination no. : 0 401 876 333E Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA32ORS257 EP type number : 0 411 826 075 BASIC SETTING Governor Governor design. : RSV250...1100P0A533 1st speed rpm: 1000 : 0 421 833 274 Governer no. Rack travel in mm : 11.70...11.80 Customer-spec. information Del.guantity cm3/: 22.3...22.5 Customer : FNASA : 96 T1A0 100 s: (22.0...22.8) Engine : 220.0 : 2200 cm3 : 0.51st version kW Spread Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Test oil inlet temp. . C : 38...42 Overflow valve cm3 : 0.8Spread 100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 assembly : 1 688 901 019 Openina pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.50 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0.8 1st version Test lines : 1 680 750 067 Speed rpm : 1000 : 223.0...225.0 Del.quantity 1000 : (220.0...228.0) Outside diameter : 5.00 x Wall thickness Spread cm3 : (9.00) : 6.00x1.50x1000 1000 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant.

1st version Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.70

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

rpm : 1010...1015 Speed 2nd rack travel in: 4.00 rpm : 1050...1080 Speed 3rd rack travel in: 4.00 Speed rpm : 1060...1090 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.3 Testing: : 100 Speed rpm Minimum rack trave: 19.50 : 250 rpm Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 rpm : 350...410 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.70...11.80 2nd speed rpm : 450 Rack travel in m: 11.70...11.80 3rd speed rpm : 250 Rack travel in m: 12.90...13.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1010...1015 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks:

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Firing order : 1-5-3-6-2-4 : ENA 11,9 g6 Test sheet Edition : 17.02.89 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + -. .: 0.50 (0.75) : 0 401 876 333F Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA32ORS257 EP type number : 0 411 826 075 BASIC SETTING Governor Governor design. : RSV250...1100P0A533 1st speed rpm: 1000 Governer no. : 0 421 833 274 Rack travel in mm : 11.20...11.30 Customer-spec. information Del.quantity cm3/: 21.2...21.4 Customer : ENASA : 96 T1A0 100 s: (20.9...21.7) Engine cm3 : 0.51st version kW : 221.0 Spread : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.02nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Test oil inlet temp. , C : 38...42 Overflow valve cm3 : 0.8Spread 100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 assembly : 1 688 901 019 Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x : 4.50 Orifice plate diameter mm : 0,8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Test lines : 1 680 750 067 Speed : 212.0...214.0 Del.quantity 1000 : (209.0...217.0) cm3 : 5.00 1000 : (9.00) Outside diameter x Wall thickness Spread : 6.00X1.50X1000 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses

1st version Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.20

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

rpm : 1010...1020 Speed 2nd rack travel in: 4.00 Speed rpm : 1050...1060 3rd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.3 Testina: Speed rpm Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 rpm : 350...410 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 11.20...11.30 2nd speed rpm : 450 Rack travel in m: 11.20...11.30 d speed rpm : 250 3rd speed Rack travel in m: 12.40...13.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 1010...1020 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00 Remarks: **APPLICATION** Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF 11,7 f1 : 07.07.89 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 876 338 Injection pump Pump designation : PE6P12OA32ORS415-1 : 0 411 826 123 EP type number Governor : RSV250...1100P5A508-Governor design. : 0 421 833 321 Governer no. Customer-spec. information : DAF Customer : KS 238 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina pressure, bar : 207...210 : 1 680 750 067 Test lines Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Tolerance + - ... : 0.50 (0.75)BASIC SETTING rpm: 650 1st speed Rack travel in mm : 11.70...11.80 Del.quantity cm3/ : 18.5...18.7 100 s: (18.2...19.0) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 250.0 Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 5.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 650 Aneroid pressure h: 700 Del.quantity : 185.0...187.0 1000 : (182.0...190.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 9.70 Speed rpm : 1130...1140 2nd rack travel in: 4.00 Speed rpm : 1185...1215 3rd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1400

Phasing

: 0-60-120-180-240-300

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 2.80...2.90 : (2.75...2.95)

rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring : 250 rpm Rack travel in mm : 6.0 : 250 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 630...730 Speed rom TORQUE CONTROL Torque control curve - 1st version rpm : 1090 1st speed Rack travel in m: 10.70...10.90 rpm : 650 2nd speed Rack travel in m: 12.00...12.10 rpm : 775 3rd speed Rack travel in m: 11.60...11.80 h speed rpm : 840 4th speed Rack travel in m: 11.10...11.30 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 700 Pressure Rack travel mm : 11.70...11.80 Measurement Speed 1/min: 600 1st pressure hPa : -Rack travel in m: 10.30...10.50
2nd pressure hPa : 300
Rack travel in m: 11.30...11.40
3rd pressure hPa : 255 Rack travel in m: 10.80...11.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 1090 Speed rpm Del.quantity cm3/: 170.0...174.0 1000 s: (167.0...177.0) Aneroid pressure h: -: 600 Speed rpm Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1130...1140 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 305.0...345.0 1000 s: (301.0...349.0) Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 250 Speed Rack travel in mm : 6.40...6.60 Remarks:

: 3.50...3.60 : (3.45...3.65) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : PEN 12,2 b : 31.03.89 Test sheet Edition : 9.12.88 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing : 0 401 876 761 Tolerance + - ... : 0.50 (0.75)Combination no. Time to cyl. no. : 1 Injection pump Pump designation : PE6P120A320RS3206 EP type number : 0 411 826 773 BASIC SETTING Governor Governor design. : RSV250...900P4A374-6 rpm : 700 1st speed : 0 421 833 283 Governer no. Rack travel in mm : 11.70...11.80 Customer-spec. information Del.quantity cm3/: 27.5...27.7 Customer : VOLVO-PENTA Engine : TAMD122 A 100 s: (27.2...28.0) cm3 : 0.51st version kW : 280.0 Spread Rated speed : 1800 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.7...2.3 Test oil inlet temp. . C : 38...42 100 s: (1.4...2.6) cm3 : 0.5Overflow valve Spread : 1 417 413 025 100 s: (0.7) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 : 1 688 901 019 rpm : 800 assembly Speed Rack travel in mm : 0.30...1.40 Opening : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar 1st version Orifice plate diameter mm : 0,8 rpm : 700 Speed Aneroid pressure h: 900 Del.quantity : 2/3.3...280.5) Test lines : 1 680 750 067 : 5.00 cm3 Spread 1000 : (9.00) Outside diameter x Wall thickness x Lenath mm : 6.00x1.50x1000 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. position degrees: 50...58 per values Testina: 1st rack travel in: 10.70 Speed rpm : 925...935 BEGINNING OF DELIVERY Test pressure, bar: 25...27 2nd rack travel in: 4.00

Speed rpm : 985...1015 3rd rack travel in: 4.00 rpm : 995...1025 Speed 4th rack travel in: 1130 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring : 250 rpm Speed Rack travel in mm: 4.6 : 250 Speed rpm Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00 : 380...440 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 700 rpm hPa : 900 Pressure Rack travel mm : 11.70...11.80 Measurement $1/\min : 700$ Speed 1st pressure hPa : -Rack travel in m: 8.60...8.80 2nd pressure hPa : 240 Rack travel in m: 8.90...9.00 3rd pressure hPa : 770 Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 700 Del.quantity cm3/: 177.0...179.0 1000 s: (174.0...182.0) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 10.70 Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (250.0...290.0)

LOW IDLE

Speed rpm Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) Spread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90

C20

: 3.50...3.60 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Note remarks : PEN 12,2 b1 : 11.11.88 Test sheet Edition Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasina Tolerance + - ... : 0.50 (0.75)Combination no. : 0 401 876 761A Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA32ORS32O6 : 0 411 826 773 EP type number BASIC SETTING Governor Governor design. : RSV250...900P4A374-6 1st speed rpm : 700 : 0 421 833 283 Governer no. Rack travel in mm : 12.10...12.20 Customer-spec. information : VOLVO-PENTA Del.quantity cm3/: 29.0...29.2 Customer Engine : TAMD122 A 100 s: (28.7...29.5) 1st version kW : 280.0 Spread cm3 : 0.5Rated speed : 1800 100 s: (0.9) TEST RENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.5 Test oil inlet temp. , C : 38...42 Overflow valve 100 s: (0.7) : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 rpm : 800 assembly : 1 688 901 019 Speed Rack travel in mm : 0.30...1.40 Opening . : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar Orifice plate 1st version rpm : 700 : 0,8 Speed diameter mm Aneroid pressure h: 1200 Del.quantity : 290.5...272.5 1000 : (287.5...295.5) Spread cm3 : 5.00 1000 : (9.00) Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 RATED SPEED x Length mm (A) Injection pump setting values

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 11.10 Speed rpm : 1020...1030

2nd rack travel in: 4.00

C21

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

rpm : 1080...1110 Speed 3rd rack travel in: 4.00 Speed rpm : 1090...1120 4th rack travel in: 1160 Speed rom : 0.30...1.40LOW IDLE 1 Control Lever position degrees: 18...26 Setting point w/out bumper spring : 250 Speed rpm Rack travel in mm: 4.6 : 250 Speed rpm Rack travel in mm : 4.50...4.70 Rack travel in mm : 2.00 : 380...440 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : .700 rpm hPa : 1200 Pressure : 12.10...12.20 Rack travel mm Measurement 1/min: 700 Speed 1st pressure hPa : -Rack travel in m: 8.60...8.80 2nd pressure hPa : 360 Rack travel in m: 8.90...9.00 3rd pressure hPa : 1030 Rack travel in m: 11.70...12.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 700 Del.quantity cm3/: 177.0...179.0 1000 s: (174.0...182.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1020...1030 STARTING FUEL DELIVERY

: 100

rpm

Del.quantity cm3/: 290.0...310.0 1000 s: (280.0...320.0)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

C22

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : PEN 7,1 c 2 : 07.02.89 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 876 768 Injection pump Pump designation : PE6P110A320RS3147 EP type number : 0 411 816 743 Governor Governor design. : RSV650...750P4A421-6 Governer no. :: 0 421 833 309 Customer-spec. information : VOLVO-PENTA Customer Engine : TID 71AG TEST BENCH REQUIREMENTS Test oil inlet temp. . C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Tolerance + -., .: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 16.4...16.6 100 s: (16.1...16.9) cm3 : 0.4Spread 100 s: (0.7) rpm : 650.0 2nd speed Rack travel in mm : 4.0...4.2 Del.quantity cm3/ : 1.7...2.1 100 s: (1.4...2.3) Spread cm3 : 0.3100 s: (0.6) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 3.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Del.quantity : 164.0...166.0 1000 : (161.0...169.0) Spread cm3 : 4.00 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 37...45 Testing: 1st rack travel in: 10.50 Speed rpm : 747...752 2nd rack travel in: 4.00 Speed rpm: 777...790 4th rack travel in: 930 rpm : 0.30...1.40 Speed

: 0-60-120-180-240-300

Phasing

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

LOW IDLE 1 Control lever position degrees: 31...39 Setting point w/out bumper spring Speed rpm : 650 Rack travel in mm: 4.1 Speed : 650 rpm Rack travel in mm : 4.00...4.20 Rack travel in mm : 2.00 Speed rpm : 630...690 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.50 Speed rpm : 747...752 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 150.0...180.0 1000 s: (146.0...184.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed : 650 rpm Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5) Spread cm3: 3.00 1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 12,2 c Edition : 09.06.89 Replaces : TSO-4113 Test oil Combination no. : 0 401 876 769 Injection pump Pump designation : PE6P12OA32ORS32O6-2 EP type number : 0 411 826 784 Governor Governor design. : RSV250..1300P0A374-8 : 0 421 833 320 Governer no. Customer-spec. information Customer : VOLVO-TRUCK : TAMD71A PD Engine 1st version kW : 280.0 : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate : 0,8 diameter mm Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + -, .: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 10.70...10.80 Del.quantity cm3/: 23.5...23.7 100 s: (23.2...24.0) cm3 : 0.5Spread 100 s: (0.9) rpm : 250.02nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.5Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.40 Governor spring pre-tension Click setting x : 2.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 1200 : 235.5...237.5 Del.quantity 1000 : (232.5...240.5) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 48...56 Testing:

Prestroke mm

: 3.50...3.60

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

1st rack travel in: 9.70 rpm : 1295...1305 Speed 2nd rack travel in: 4.00 : 1375...1405 Speed rpm 3rd rack travel in: 4.00 : 1385...1415 Speed rpm 4th rack travel in: 1500 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 4.6 : 250 Speed rpm Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00 : 390...450 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 700 rpm Pressure hPa : 1200 Rack travel mm : 10.70...10.80 Measurement 1/min: 700 Speed 1st pressure hPa : -Rack travel in m: 7.40...7.60 2nd pressure hPa : 960 Rack travel in m: 10.40...10.50 3rd pressure hPa : 400 Rack travel in m: 7.80...8.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 700 Speed Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) **BREAKAWAY** 1st version 1mm rack travel less than

Speed rpm : 100

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)

Spread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90

Speed

full load rack tr: 9.70

STARTING FUEL DELIVERY

rpm : 1295...1305

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 14,7 h Test sheet : 07.02.89 Edition Replaces : 26.6.87 : ISO-4113 Test oil Combination no. : 0 401 878 710 Injection pump Pump designation : PE8P110A320LS3845 EP type number : 0 411 818 715 Governor Governor design. : 0 421 833 270 Governer no. Customer-spec. information Customer : DAIMLER-BENZ : 0M442 Engine : 163.0 1st version kW Rated speed : 1500 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

Tolerance $+ - \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot$ Time to cyl. no. : 8 : RSV350...750P0A824-1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 14.8...15.0 100 s: (14.5...15.2) cm3 : 0.4Spread 100 s: (0.8) 2nd speed rpm : 350.0 Rack travel in mm : 7.9...8.2 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3
Speed rpm: 800
Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 3.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Del.quantity : 148.0...152.5) : 4.00 Spread 1000 : (8.00) (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. RATED SPEED 1st version per values Control lever position degrees: 22...30 BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm

Firina order

Phasing

Phasing

: 4.00...4.10 : (3.95...4.15)

: 8- 7- 2- 6- 3- 5-

: 0-45-90-135-180-225-

Rack travel in mm : 9.00...12.00

: 0-45-90 : 270-315

Testing: 1st rack travel in: 12.90 rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm : 780...793 4th rack travel in: 1000 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 10...18 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.1 Testing: Speed : 100 rpm Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 7.00...7.20 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) Remarks: Observe VDT-I-420/120 **APPLICATION** Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 14,6 p 5 : 24.05.89 Test sheet Edition : 1.7.88 Replaces

: ISO-4113 Test oil

: 0 401 878 711 Combination no.

Injection pump

Pump designation : PE8P12OA32OLS3816-10

EP type number : 0 411 828 715

Governor

: RSV650...1150P0A823-Governor design.

: 0 421 833 280 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M422A Engine

1st version kW : 206.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 650.0 Rack travel in mm : 3.3...3.6

Del.guantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

: 133.0...135.0 Del.quantity

1000 : (130.0...138.0) Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing: 1st rack travel in: 8.30 rpm : 1210...1220 2nd rack travel in: 4.00 Speed rpm : 1235...1255 4th rack travel in: 1400 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 650 Speed Rack travel in mm: 3.4 Speed rpm : 650
Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00 : 655...695 Speed rpm SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1180 1st speed Rack travel in m: 9.30...9.40 rpm : 950 2nd speed Rack travel in m: 10.80...11.10 3rd speed rpm : 1050 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 950 rpm Del.quantity cm3/: 160.0...164.0 1000 s: (157.0...167.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.30 rpm : 1210...1220 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

: 650

rpm

LOW IDLE

Speed

D02

Rack travel in mm : 3.30...3.60
Del.quantity cm3/ : 16.0...22.0
1000 s: (13.0...25.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

: 3.50...3.60 : (3.45...3.65) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Note remarks Test sheet : MAN 10,0 a Edition : 07.04.89 : 5.8.88 : ISO-4113 Replaces : 0-72-144-216-288 Test oil Phasing Combination no. : 0 402 035 020 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 5 Pump designation : PES5P120A720/3LS512 EP type number : 0 412 025 021 BASIC SETTING Go ernor Governor design. : RQ300/1100PA813-1 1st speed rpm: 750 Governer no. : 0 421 801 405 Rack travel in mm : 10.70...10.80 Customer-spec. information Del.quantity cm3/: 20.9...21.1 : MAN Customer : D2865LF 100 s: (20.6...21.4) Engine : 191.0 : 2200 cm3 : 0.51st version kW Spread Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm : 3.9...4.1 Test oil Del.quantity cm3/ : 1.2...1.8 inlet temp. , C : 38...42 100 s: (0.9...2.1) cm3 : 0.8 Overflow valve Spread 100 s: (1.2) : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -2 Speed rpm: 600 Rack travel in mm: 19.20...20.80 : 1 688 901 019 assembly Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version rpm : 750 Speed diameter mm : 0,8 Aneroid pressure h: 1000 Anerota 5.00 Del.quantity : 209.0...214.0) 1000 : (206.0...214.0) Spread cm3 : 5.00 1000 : (9.00) Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Setting point:

: 600 rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 9.10

D03

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

rpm : 1145...1160 Speed 2nd rack travel in: 4.00 : 1180...1210 Speed rpm : 1180. 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 4.0 Testing: : 100 Speed rpm Minimum rack trave: 5.50 : 300 Speed rpm Rack travel in mm : 3.90...4.10 Rack travel in mm : 2.00 : 320...380 Speed rpm TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.20...10.30 rpm : 750 2nd speed Rack travel in m: 11.00...11.20 3rd speed rpm : 920 Rack travel in m: 10.60...10.80 Aneroid/Altitude Compensator Test 1st version Settina rpm : 500 hPa : 1000 Speed rom Pressure Rack travel mm : 10.70...10.80 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 7.70...7.90 2nd pressure hPa : 125 Rack travel in m: 8.10...8.20 3rd pressure hPa : 430 Rack travel in m: 10.20...10.50 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

rpm : 1100

Del.quantity cm3/: 198.0...202.0 1000 s: (195.0...205.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/ : 200.0...206.0 1000 s: (197.0...209.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 125.0...127.0 1000 s: (122.0...130.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 rpm : 1145...1160 Speed STARTING FUEL DELIVERY rom : 100 Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) LOW IDLE : 300 Speed rpm Rack travel in mm : 3.90...4.10

Del.quantity cm3/: 12.0...18.0

cm3 : 8.00 1000 s: (12.00)

Remarks:

Spread

: MAN-NR. 2-7881

1000 s: (9.0...21.0)

004

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : MAN 11,9a37 Test sheet : 24.05.89 Fdition : 10.2.89 Replaces : ISO-4113 Test oil Combination no. : 0 402 036 077 Injection pump Pump designation : PES6P120A720/3LS470-: 0 412 026 050 EP type number Governor Governor design. : RQ300/1100PA813-6 Governer no. : 0 421 801 466 Customer-spec. information Customer : D2866TUH/001 Engine : 213.0 1st version kW Spread Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. _ C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening | pressure, bar : 207...210 Orifice plate : 0,8 diameter mm : 1 680 750 067 Test lines Spread Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

```
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
                  : 6-2-4-1-5-3
Firing order
Phasing
                   : 0-60-120-180-240-300
Tolerance + - \dots : 0.50 (0.75)
Time to cyl. no. : 6
BASIC SETTING
1st speed
              rpm : 750
Rack travel in mm : 11.40...11.50
Del.guantity cm3/: 20.0...20.2
             100 s: (19.7...20.5)
             cm3 : 0.5
             100 s: (0.9)
2nd speed rpm : 300.0 Rack travel in mm : 5.1...5.3
Del.guantity cm3/: 1.2...1.8
             100 s: (0.9...2.1)
             cm3 : 0.8
             100 s: (1.2)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -2
             rpm : 750
Rack travel in mm : 14.70...16.30
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed rpm: 750
Aneroid pressure h: 1000
                 : 200.0...202.0
Del.quantity
            1000 : (197.0...205.0)
                 : 5.00
            cm3
            1000 : (9.00)
RATED SPEED
1st version
Setting point:
Speed
           rpm
Rack travel in mm : 15.5
Testing:
```

: 2.80...2.90

005

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

1st rack travel in: 10.40 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 5.2 Testina: Speed rpm : 100 Minimum rack trave: 6.70 Speed rpm: 300
Rack travel in mm: 5.10...5.30
Rack travel in mm: 2.00
Speed rpm: 390...430 TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 750 Rack travel in m: 11.80...11.90 and speed rpm : 1100 Rack travel in m: 11.70...11.90 2nd speed rpm Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed rpm Pressure Rack travel mm : 11.40...11.50 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 190 Rack travel in m: 9.10...9.20 3rd pressure hPa : 350 Rack travel in m: 10.10...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/ : 213.0...219.0 1000 s: (210.0...222.0)

Aneroid pressure h: rpm : 500 Speed Del.guantity cm3/: 119.0...121.0 1000 s: (116.0...124.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1145...1160 Speed STARTING FUEL DELIVERY Speed rpm: 100 Del.quantity cm3/: 215.0...235.0 1000 s: (211.0...239.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 5.10...5.30 Del.quantity cm3/ : 12.0...18.0 1000 s: (9.0...21.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: : MAN-NR. 2-7893 At start of delivery, locating pin must latch into slit in pointer. **APPLICATION Omnibus**

006

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks : MAN 11,9a38 Test sheet Edition : 09.06.89 Replaces : ISO-4113 Test oil Phasing : 0 402 036 078 Combination no. Injection pump : PES6P120A720/3LS470-Pump designation : 0 412 026 050 BASIC SETTING EP type number Governor Governor design. : RQ300/1100PA813-8 1st speed : 0 421 801 483 Governer no. Customer-spec. information Customer : D2866LF Engine : 213.0 1st version kW Spread Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate 1st version diameter mm : 0,8 Speed : 1 680 750 067 Test lines Spread cm3 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000 RATED SPEED 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 : 0-60-120-180-240-300 Time to cyl. no. : 6 rpm : 750 Rack travel in mm : 10.40...10.50 Del.quantity cm3/: 18.3...18.5 100 s: (18.0...18.8) cm3 : 0.5100 s: (0.9) 2nd speed rpm : 300.0 Rask travel in mm : 4.7...4.9 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 14.70...16.30 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 750 Aneroid pressure h: 1000 Del.quantity : 183.0...188.0) : 5.00 1000 : (9.00) Setting point: : 600 Speed rpm Rack travel in mm : 15.5 Testing:

D07

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

1st rack travel in: 8.70 Speed rpm : 1145...1160 2nd rack travel in: 4.00 Speed : 1180...1210 rpm 4th rack travel in: 1300 rom : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 4.8 Testing: : 100 Speed rpm Minimum rack trave: 6.30 : 300 Speed rpm Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 : 340...380 Speed man TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 9.70...9.80 rpm : 750 2nd speed Rack travel in m: 10.40...10.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure : 10.40...10.50 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40 3rd pressure hPa : 160 Rack travel in m: 9.80...10.10 START CUT-OUT 1/min : 190 (210) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1100 Speed Del.quantity cm3/: 178.0...182.0 1000 s: (175.0...185.0)

Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 174.0...180.0 1000 s: (171.0...183.0) Aneroid pressure h: 160 Speed rpm : 500 Del.quantity cm3/ : 157.0...169.0 1000 s: (154.0...172.0) 500 Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.70 rpm : 1145...1160 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 225.0...245.0

LOW IDLE

Remarks:

: MAN-NR. 2-7760

1000 s: (221.0...249.0)

800

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 Note remarks : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 : MAN 11,9a39 Test sheet Edition : 02.06.89 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 402 036 079 Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) Injection pump Pump designation: PES6P120A720/3LS470-Time to cyl. no. : 6 EP type number : 0 412 026 050 BASIC SETTING Governor Governor design. : RQV300...1100PA876 1st speed rpm: 750 : 0 421 813 661 Governer no. Rack travel in mm : 10.30...10.40 Customer-spec. information Del.quantity cm3/: 18.3...18.5 Customer : MAN 100 s: (18.0...18.8) : D2866LF Engine 1st version kW : 213.0 cm3 : 0.5Spread Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 4.8...5.0 Test oil Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Spread cm3: 0.8 inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.70...2.00 Opening | 2nd speed rpm : 850 pressure, bar : 207...210 travel mm : 6.00...6.20 3rd speed rpm : 1100 Orifice plate : 8.10...8.30 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 075 Control-lever position Degree: -1 rpm : 1130 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 8.00x2.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Speed rpm : 750 Aneroid pressure h: 1000 Del.quantity : 183.0...185.0 1000 : (180.0...188.0) per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Spread cm3 : 5.001000 : (9.00) RATED SPEED 1st version Control lever position degrees: 49...57 Testina: 1st rack travel in: 8.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 16...24 Testina: : 100 Speed rpm Minimum rack trave: 6.30 rpm : 300 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 310...410 Speed TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version rpm : 750 1st speed Rack travel in m: 10.30...10.40 and speed rpm : 1100 Rack travel in m: 9.70...9.80 2nd speed rpm : 850 3rd speed Rack travel in m: 10.10...10.20 4th speed rpm : 975 Rack travel in m: 9.80...10.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1000 : 10.30...10.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 85 Rack travel in m: 9.30...9.40 3rd pressure hPa : 160

START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 1100 Speed rpm Del.quantity cm3/: 178.0...182.0 1000 s: (175.0...185.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 174.0...180.0 1000 s: (171.0...183.0) Aneroid pressure h: 160 Speed rpm : 500 Del.quantity cm3/ : 157.0...169.0 1000 s: (154.0...172.0) 500 Aneroid pressure h: rpm : 500 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 225.0...245.0 1000 s: (221.0...249.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 4.80...5.00 Del.guantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: :

Rack travel in m: 9.80...10.20

D10

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 10,0 u Edition : 08.05.89 Replaces Test oil : ISO-4113 Combination no. : 0 402 045 702 Injection pump Pump designation : PES5P110A820LS3218 EP type number : 0 412 015 700 Governor Governor design. : RQV300..1100PA916-2 : 0 421 813 750 Governer no. Customer-spec. information Customer : DAIMLER-BENZ : OM449 Engine 1st version kW : 140.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 015 Test lines Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Firing order

Phasing : 0-72-144-216-288

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.40...10.50

Del.guantity cm3/: 13.5...13.7

100 s: (13.2...13.9)

Spread cm3 : 0.4

100 s: (0.8)

rpm : 300.0 2nd speed Rack travel in mm : 6.8...7.2 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

cm3 : 0.4Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.10...1.40 travel mm 2nd speed rpm : 450

: 3.40...3.80 travel mm

3rd speed rpm : 1150

travel mm : 7.90...8.30

4th speed rpm : 1225 : 9.10...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1140 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 135.0...137.0 Del.quantity 1000 : (132.5...139.5)

cm3 : 4.00 Spread 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 9.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1195...1220 4th rack travel in: 1250 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 20...28 Testing: Speed : 200 rpm Minimum rack trave: 9.00 rpm : 300 Rack travel in mm : 6.80...7.20 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 110.0...114.0 1000 s: (107.0...117.0) cm3 : 5.00Spread 1000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 9.50

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

D12

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Note remarks Firing order : MB 10,0 u 1 Test sheet Edition : 08.05.89 Replaces : ISO-4113 Test oil Phasing : 0-72-144-216-288 Tolerance $+ - \dots : 0.50 (0.75)$ Combination no. : 0 402 045 703 Injection pump Time to cyl. no. : 5 Pump designation : PES5P110A820LS3218 : 0 412 015 700 BASIC SETTING EP type number Governor Governor design. : RQV300..1100PA916-3 1st speed rpm: 1100 : 0 421 813 751 Governer no. Rack travel in mm : 11.20...11.30 Customer-spec. information Del.quantity cm3/: 14.4...14.6 Customer : DAIMLER-BENZ : 0M449 100 s: (14.1...14.8) Engine cm3 : 0.41st version kW : 147.0 Spread : 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Test oil Rack travel in mm : 6.8...7.2 inlet temp. , C : 38...42 Del.quantity cm3/ : 1.2...1.8 100 s: (0.9...2.0) Overflow valve Spread cm3 : 0.4100 s: (0.7) : 1 417 413 025 Inlet press., bar: 1.50 (B) Setting of injection pump with governor Overflow quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL rpm : 300 1st speed : 1.10...1.40 Test nozzle holder travel mm rpm : 450 : 0 681 343 009 2nd speed assembly : 3.40...3.80 rpm : 1150 travel mm 3rd speed Opening : 7.90...8.30 pressure, bar : 172...175 travel mm rpm : 1225 4th speed : 9.10...9.70 travel mm Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 Speed rpm : 1140 Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 1100

Del.quantity : 144.0...148.5)

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 50...58 Rack travel in mm : 16.5 Testing: 1st rack travel in: 10.20 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1250 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 20...28 Testing: Speed rpm : 200 Minimum rack trave: 9.00 : 300 rpm Rack travel in mm : 6.80...7.20 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 121.0...125.0 1000 s: (118.0...128.0) cm3 : 5.00Spread 1000 s: (9.)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

D14

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 m 1 : 11.05.89 Edition

: 12.2.88 Replaces Test oil : ISO-4113

: 0 402 046 335 Combination no.

Injection pump

Pump designation : PES6P120A320RS515 : 0 412 026 053 EP type number

Governor

: RQV300...1150PA527-2 Governor design.

: D 421 815 188 Governer no.

Customer-spec. information Customer : RVI

Engine : MIDRO62030C

TEST BENCH REQUIREMENTS

Test oil

inlet temp., C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 600.02nd speed

Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7) cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 300 : 1.70...2.10 travel mm rpm : 900 2nd speed

: 5.80...6.20 travel mm

rpm : 1150 3rd speed : 7.40...7.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1225 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Del.quantity : 143.0...148.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version

Control Lever position degrees: 57...65 Testing: 1st rack travel in: 9.20 rpm : 1235...1245 Speed 2nd rack travel in: 4.00 rpm : 1305...1335 Speed 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 6...14 Testina: : 200 Speed rpm Minimum rack trave: 6.20 rpm : 300 Speed Rack travel in mm : 4.60...4.80 CONSTANT REGULATION rpm : 320...4% Speed TORQUE CONTROL Dimension a mm : 1.80 Torque control curve - 1st version 1st speed rpm : 1150
Rack travel in m: 10.20...10.30 rpm : 750 2nd speed Rack travel in m: 9.20...9.30 : 500 3rd speed rom Rack travel in m: 8.60...8.80 4th speed rpm : 350 Rack travel in m: 8.40...8.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 120.0...126.0 1000 s: (117.0...129.0) rpm : 500 Speed Del.quantity cm3/: 64.0...70.0 1000 s: (61.0...73.0) BREAKAWAY 1st version

1mm rack travel less than

full load rack tr: -1.00 rpm : 1235...1245 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : -5.40...-5.60
Del.quantity cm3/: 13.0...19.0
1000 s: (10.0...22.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

Start-of-delivery mark 6, cam angle after start of delivery cyl. 1

: 4.30...4.40 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.25...4.45) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 : MB 11,7 a 3 : 14.04.89 Test sheet Edition : 9.3.87 Replaces : TSO-4113 : 0-60-120-180-240-300 Test oil Phasina Tolerance + - ... : 0.50 (0.75)Combination no. : 0 402 046 751 Time to cyl. no. : 6 Injection pump Pump designation : PES6P110A820LS3131 : 0 412 016 715 BASIC SETTING EP type number Governor Governor design. : RQ300/1100PA723 1st speed rpm : 1100 : 0 421 801 265 Governer no. Rack travel in mm : 11.10...11.20 Customer-spec. information Del.quantity cm3/: 14.0...14.2 : DAIMLER-BENZ Customer Engine : 0M427H 100 s: (13.7...14.5) cm3 : 0.41st version kW : 177.0 Spread Rated speed : 2200 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 7.1...7.3 Test oil Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.4 100 s: (0.7) inlet temp. ., C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm: 550 Rack travel in mm: 14.70...16.40 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly Openina | 1st version pressure, bar : 172...175 Speed rpm : 1100 : 140.0...142.0 Del.quantity 1000 : (137.0...145.0) cm3 : 4.00 1000 : (8.00) Test Lines : 1 680 750 015 Spread Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length min 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: Speed rpm : 550 Rack travel in mm : 15.5

Testina:

Speed

1st rack travel in: 10.20

rpm : 1140...1150

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

2nd rack travel in: 4.00 Speed rpm : 1175...1205 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.2 Testing: Speed rpm: 100
Minimum rack trave: 8.80
Speed rpm: 300
Rack travel in mm: 7.10...7.30
Rack travel in mm: 2.00 : 360...400 Speed rom START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 117.0...121.0 1000 s: (114.0...124.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 Speed rpm : 1140...1150 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) Remarks:

: 3.80...3.90 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3 Note remarks Test sheet : MAN 11,9 d Edition : 23.06.89 : 9.3.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75): 0 402 046 769 Combination no. Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS3167 EP type number : 0 412 026 720 BASIC SETTING Governor Governor design. : RQV300...1100PA667-2 1st speed rpm: 1100 : 0 421 813 524 Governer no. Rack travel in mm : 12.60...12.70 Customer-spec. information Del.quantity cm3/: 23.4...23.6 Customer : D2866LE Engine 100 s: (23.1...23.9) : 300.0 : 2200 cm3 : 0.51st version kW Spread Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Test oil Rack travel in mm : 5.9...6.1 inlet temp. , C : 38...42 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Overflow valve cm3 : 0.8Spread 100 s: (1.2) : 1 417 413 025 Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 300 1st speed : 1.20...1.40 Opening travel mm rpm : 500 : 3.30...3.50 rpm : 900 : 207...210 2nd speed pressure, bar travel mm Orifice plate 3rd speed : 5.90...6.20 diameter mm : 0,8 travel mm rpm : 1100 4th speed : 7.60...7.80 travel mm Test lines : 1 680 750 067 GUIDE SLEEVE POSITION Outside diameter Control-lever position Degree: -1 Speed rpm : 1175 Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00x3.00x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Del.quantity : 234.0...236.0 1000 : (231.0...239.0)

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 49...57 Testina: 1st rack travel in: 11.60 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1245...1275 Speed 4th rack travel in: 1400 rom : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 13...21 Testina: Speed : 100 rpm Minimum rack trave: 7.50 Speed : 300 rpm

Rack travel in mm : 5.90...6.10 CONSTANT REGULATION

rpm : 330...445 Speed START CUT-OUT

1/min: 220 (240) Speed

1st version 1mm rack travel less than

full load rack tr: 11.60 Speed rpm : 1140...1150

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

LOW IDLE

BREAKAWAY

Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0) Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

APPLICATION : 2-7656

Ship

020

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: KHD 9,6 u 4 : 16.06.89 : 14.4.89 Test sheet Edition Replaces Test oil

: ISO-4113

Combination no. : 0 402 046 806

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1150PA850-4

Governer no. : 0 421 813 745

Customer-spec. information Customer : KHD

: BF6L513RC Engine

1st version kW : 210.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

cm3 : 0.4Spread

100 s: (0.7)

rpm : <u>3</u>00.0 2nd speed

Rack travel in mm: 7.6...7.8 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.9) Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300 : 1.00...1.40 travel mm

2nd speed rpm : 450
 travel mm : 2.60...3.20
3rd speed rpm : 650
 travel mm : 3.30...3.90
4th speed rpm : 1195
 travel mm : 8.30...8.50

5th speed rpm : 1330

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1190 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900
Del.quantity : 165.0...167.0
1000 : (162.0...170.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 13.00

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1315...1345 4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 19...27

Testing:

Speed rpm : 100 Minimum rack trave: 9.20

Speed rpm : 300 Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

rpm : 300...550 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed

st speed rpm : 1150 Rack travel in m: 14.00...14.10

rpm : 750 2nd speed

Rack travel in m: 14.20...14.40

3rd speed rpm : 850

Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 900 Pressure

: 14.20...14.30 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 510

Rack travel in m: 13.70...13.80

3rd pressure hPa : 375 Rack travel in m: 12.70...12.90

START CUT-OUT

1/min : 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 750 Del.quantity cm3/ : 170.0...174.0 1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 450 Del.quantity cm3/ : 123.0...125.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 170.0...200.0

1000 s: (166.0...204.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 6,2 f : 0-60-120-180-240-300 Phasina Edition : 07.07.89 Tolerance + - ... : 0.50 (0.75)Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 0 402 046 811 BASIC SETTING Injection pump rpm: 1175 Pump designation : PES6P110A320RS3233 1st speed EP type number : 0 412 016 728 Rack travel in mm : 13.50...13.60 Governor Governor design. : RQV275...1175PA833-4 Del.quantity cm3/: 11.6...11.9 Governer no. : 0 421 813 762 Customer-spec. information 100 s: (11.3...12.1) Customer : RVI cm3 : 0.4Spread : MIDR 060226D Engine 100 s: (0.7) 1st version kW : 166.0 rpm : 275.0 Rated speed : 2350 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 2.8...3.3 100 s: (2,5...3.5) TEST BENCH REQUIREMENTS Test oil Spread cm3 : 8.4 inlet temp. , C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 417 413 025 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 Inlet press., bar: 1.50 : 0.40...0.60 travel mm Test nozzle holder 2nd speed rpm : 450 : 2.90...3.50 : 0 681 343 009 assembly travel mm 3rd speed rpm: 800 : 4.60...5.00 travel mm Openina rpm : 1175 pressure, bar : 172...175 4th speed : 6.90...7.10 travel mm Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Outside diameter x Wall thickness Speed Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Speed rpm : 1175 Aneroid pressure h: 1000 Del.quantity : 116.0...119.0 1000 : (113.5...121.5) Spread cm3 : 4.00 per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 1000 : (7.50) Prestroke mm : 4.20...4.30

RATED SPEED

: (4.15...4.35)

Rack travel in mm : 18.00...21.00

1st version Control lever position degrees: 52...60 Testina: 1st rack travel in: 12.50 Speed rpm : 1255...1265 2nd rack travel in: 4.00 rpm : 1410...1440 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 14...22 Testing: Speed rpm Minimum rack trave: 7.20 rpm : 275 Speed Rack travel in mm : 4.80...5.00 CONSTANT REGULATION Speed rpm : 250...320 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1000 : 13.50...13.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : Rack travel in m: 9.80...10.00 2nd pressure hPa : 400 Rack travel in m: 12.90...13.00 3rd pressure hPa : 160 Rack travel in m: 10.90...11.30 START CUT-OUT 1/min: 195 (215) Speed FUEL DELIVERY CHARACTERISTICS

1st version

Speed

Speed

D24

Aneroid pressure h: 1000

Aneroid pressure h: -

rpm

rpm

: 700

: 500

Del.quantity cm3/: 111.5...116.5 1000 s: (108.5...119.5)

Speed

Del.quantity cm3/: 47.5...50.5 1000 s: (45.0...53.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: -1.00 Speed rpm : 1255...1265 STARTING FUEL DELIVERY : 100 man Del.quantity cm3/: 85.0...105.0 1000 s: (81.0...109.0) LOW IDLE Speed rpm : 275 Rack travel in mm : -8.50...-8.70 Del.quantity cm3/: 28.0...33.0 1000 s: (25.5...35.5) Spread cm3 : 84.50Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 15,6 a : 13.7.89 Edition : 2.5.89 Replaces Test oil : ISO-4113 Combination no. : 0 402 068 700 Injection pump Pump designation : PES8P110A120RS3044 Governor : RSV400...1050P2/4350 Governor design. Customer-spec. information Customer : JOHN DEERE : 8955 T Engine TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6,00X1,50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 2.75...2.85

: (2.70...2.90)

: 1-5-6-3-4-2-7-8

: 0-45-90-135-180-225-

```
Time to cyl. no. : 8
BASIC SETTING
          rpm : 1050
1st speed
Rack travel in mm : 10.00...10.10
Del.quantity cm3/: 14.7...14.9
             100 s: (14.4...15.2)
Spread
             cm3 : 0.4
             100 s: (0.75)
             rpm : 400
2nd speed
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 2.2...2.8
             100 s: (-)
             cm3 : 0.4
Spread
             100 s: (0.75)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -3
            rpm : 800
Speed
Rack travel in mm : 0.30...1.00
Governor spring pre-tension
Click setting x :?
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
            rpm : 1050
Speed
Aneroid pressure h: 650
                 : 147.0...149.0
Del.quantity
            1000 : (144.0...152.0)
            cm3
Spread
                 : (7.5)
            1000
RATED SPEED
1st version
Control lever
 position degrees: 39.5...47.5
Testing:
1st rack travel in: 9.00
            rpm : 1095...1105
  Speed
2nd rack travel in: 4.00
  Speed rpm : 1155...1185
4th rack travel in: 1275
           rpm : 0.30...1.70
  Speed
LOW IDLE 1
```

270-315

Tolerance + - ... : 0.50 (0.75)

Phasing

BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00

Prestroke mm

Firing order

Control Lever position degrees: 17...25

Testina:

Speed rpm : 100 Minimum rack trave: 16.00 rpm : 400

Rack travel in mm : 5.10...5.30

Rack travel in mm : 2.00

rpm : 565...625 Speed

: 800 Speed rpm Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 10.00...10.10

2nd speed rpm : 750

Rack travel in m: 10.90...11.20

3rd speed rpm : 550

Rack travel in m: 9.50...9.60

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 550 rpm hPa : 380 Pressure

: 10.70...10.80 Rack travel mm

Measurement

Speed $1/\min : 550$

1st pressure hPa : 270

Rack travel in m: 9.70...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 650

Speed rpm : 750 Del.quantity cm3/ : 163.5...166.5 1000 s: (160.0...170.0)

Aneroid pressure h: -

Speed rpm : 550 Del.quantity cm3/ : 130.0...134.0

1000 s: (127.0...137.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1095...1105 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 180.0...200.0

1000 s: (-)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1155 Del.quantity cm3/ : 37.0...47.0 1000 s: (-)

Remarks:

Start-of-delivery mark 16, cam angle after start of delivery cyl. 8

D26

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 m1 Test sheet : 14.04.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 075 701 Injection pump Pump designation : PES5P110A720LS3221 EP type number : 0 412 015 701 Governor : RSV350...1100P0A487-Governor design. : 0 421 833 315 Governer no. Customer-spec. information Customer : DAIMLER-BENZ : 0M449 Engine 1st version kW : 147.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses

: (4.25...4.45) Rack travel in mm : 9.00...12.00 : 1-3-5-4-2 Firing order : 0-72-144-216-288 Phasing Time to cyl. no. : 5 BASIC SETTING 1st speed rpm: 1080 Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 14.4...14.4 100 s: (14.1...14.6) cm3 : 0.4Spread 100 s: (0.8) rpm : 350.0 2nd speed Rack travel in mm : 6.3...6.7

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1080 : 144.0...144.0 Del.guantity 1000 : (141.5...146.5) cm3 : 4.00 1000 : (8.00) Spread RATED SPEED 1st version Control lever position degrees: 40...48 Testing: 1st rack travel in: 10.50 Speed rpm : 1130...1140 2nd rack travel in: 4.00

: 4.30...4.40

Prestroke mm

: 1190...1220 Speed rpm 4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring : 350 rpm

Rack travel in mm: 6.5 : 350 Speed rpm

Rack travel in mm : 6.30...6.70 Rack travel in mm : 2.00

rpm : 470...530 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0)

Spread cm3 : 6.001000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

Speed : 1130...1140 rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.30...4.40 : (4.25...4.45) Note remarks Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order : MB 11,7 d 4 : 29.03.89 Test sheet Edition Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance $+ - \dots : 0.50 (0.75)$ Combination no. : 0 402 076 734 Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131-1 : 0 412 016 717 BASIC SETTING EP type number Governor Governor design. : RSV350..1100P0A487-9 1st speed rpm : 1080 : D 421 833 316 Governer no. Rack travel in mm : 11.00...11.10 Customer-spec. information Del.quantity cm3/: 13.5...13.7 Customer : DAIMLER-BENZ Engine : 0M447 100 s: (13.2...13.9) 1st version kW : 168.0 Spread cm3 : 0.4Rated speed : 2200 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Test oil Rack travel in mm: 6.8...7.1 Del.quantity cm3/: 1.4...2.0 inlet temp. , C : 38...42 100 s: (1.1...2.3) Overflow valve cm3 : 0.4Spread 100 s: (0.7) : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -3 Overflow Speed rpm: 800 Rack travel in mm: 0.30...0.70 quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : ?Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Test lines : 1 680 750 015 rpm : 1080 Speed : 135.0...137.0 Del.quantity 1000 : (132.5...139.5) Outside diameter x Wall thickness : 4.00 Spread cm3 1000 : (8.00) : 6.00X1.50X600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever

position degrees: 45...53

Testing:

1st rack travel in: 10.00

E01

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Speed rpm : 1130...1140 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rpm : 0.00...1.40 Speed LOW IDLE 1 Control Lever position degrees: 19...27 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.9 Testing: Speed : 100 rpm Minimum rack trave: 19.50 rpm : 350 Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 rpm : 400...440 Speed SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/: 111.0...115.0 1000 s: (108.0...118.0) Spread cm3 : 6.001000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1130...1140 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 21,9 j Test sheet Edition : 24.05.89 Replaces : 18.9.87 Test oil : ISO-4113

Combination no. : 0 402 640 809

Injection pump

Pump designation : PE12P120A320LS7813

: 0 412 620 809 EP type number

Governor

Governor design. : RQV350...1050PA870

: 0 421 813 640 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: OM 444 LA Engine

: 552.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

8.0: diameter mm

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 19.00...21.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 650

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 22.4...22.6

100 s: (22.1...22.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.90...2.10 travel mm

rpm : 700 2nd speed

: 4.10...4.50 travel mm

rpm : 1100 3rd speed

travel mm : 7.60...8.00

: 1200 4th speed rpm

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 2nd pressure hPa : 600 rpm : 650 Rack travel in m: 13.40...13.60 Speed Aneroid pressure h: 850 3rd pressure hPa : 1200 Del.quantity : 224.0...229.0) Rack travel in m: 14.60...14.80 4th pressure hPa : 1400
Rack travel in m: 15.20...15.40
5th pressure hPa : 500
Rack travel in m: 9.00...9.40 : 5.00 Spread cm3 : (9.00) 1000 RATED SPEED START CUT-OUT 1st version 1/min : 270 (290) Control lever Speed position degrees: 64...72 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 14.50 rpm : 1090...1100 Speed 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 1700 rom : 1190...1220 Speed Speed : 1050 rpm Del.quantity cm3/: 256.0...259.0 4th rack travel in: 1300 1000 s: (253.0...262.0) Speed : 0.00...1.00 rom cm3 : 8.00 Spread 1000 s: (12.0) LOW IDLE 1 Aneroid pressure h: 1700 Control lever Speed rpm : 900 Del.quantity cm3/ : 270.0...274.0 position degrees: 14...22 1000 s: (267.0...277.0) Testing: : 100 cm3 : 8.00 Speed Spread rpm 1000 s: (12.0) Minimum rack trave: 7.70 Aneroid pressure h: 1700 rpm Rack travel in mm : 5.20...5.40 rpm : 1050 Speed Del.quantity cm3/: 185.0...188.0 * 1000 s: (182.0...191.0) CONSTANT REGULATION rpm : 350...600 cm3 : 8.00 Speed Spread 1000 s: (12.0) TORQUE CONTROL Aneroid pressure h: -: 500 Dimension a mm : 0.50 Speed rpm Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 15.30...15.50 cm3 : 3.00Spread rpm : 1000 1000 s: (12.0) 2nd speed Rack travel in m: 15.60...15.80 d speed rpm : 950 3rd speed Rack travel in m: 15.80...16.00 BREAKAWAY Aneroid/Altitude 1st version Compensator Test 1mm rack travel less than full load rack tr: 14.50 rpm : 1090...1100 1st version Speed Setting : 600 STARTING FUEL DELIVERY Speed man hPa : 850 Pressure : 14.30...14.50 Rack travel mm Speed rpm Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 10.80...11.00 Remarks:

E04

* = Set at reduced-delivery stop. ij

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 22,0 b : 07.07.89 Test sheet Edition : 31.3.89 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 640 812

Injection pump

Pump designation : PE12P12OA520LS7820

EP type number : 0 412 620 814

Governor

Governor design. : RQV350...1150PA870-4

Governer no. : 0 421 813 717

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 444 LA

1st version kW : 736.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Openina |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance $+ - \frac{1}{2} : 0.50 (0.75)$

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 31.0...31.2

100 s: (30.7...31.5)

cm3 : 0.6Spread

100 s: (1.0)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.90...2.40 travel mm

rpm : 500 2nd speed

: 3.00...3.50 travel mm

rpm : 800 3rd speed

: 4.30...4.80 travel mm rpm : 1200

4th speed : 8.30...8.80

travel mm rpm : 1250 5th speed

: 9.30...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed Aneroid pressure h: 1800 Anerow Del.quantity 1000 : 310.0...312.0 : (307.0...315.0) : 6.00 Spread cm3 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 13.30 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 Speed rpm : 1270...1300 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...48 Testina: Speed rpm : 250 Minimum rack trave: 7.00 : 350 Speed rpm Rack travel in mm : 5.00...5.60 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -: 7.60...7.90 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : 300 Rack travel in m: 9.00...9.10 2nd pressure hPa : 1100 Rack travel in m: 13.20...13.50 START CUT-OUT 1/min : 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

E07

1st version Aneroid pressure h: 1800 : 750 Speed rpm Del.quantity cm3/: 301.0...311.0 1000 s: (298.0...314.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: 1800 : 1150 Speed rpm Del.quantity cm3/: 240.0...243.0 * 1000 s: (237.0...246.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 120.0...122.0 1000 s: (117.0...125.0) cm3 : 10.00Spread 1000 s: (15.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

* = Set at reduced-delivery stop.

Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 9.00...12.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 21,0 b Edition : 16.06.89 Replaces : ISO-4113 Test oil : 0-45-60-105-120-165-Phasing Combination no. : 0 402 640 815 180-225-240-285-300-Phasing : 345
Tolerance + -, : 0.50 (0.75) Injection pump Pump designation : PE12P12OA520LS7824 EP type number : 0 412 620 816 Time to cyl. no. : 12 Governor Governor design. : RQV250...1150PA902-2 BASIC SETTING : 0 421 813 760 Governer no. 1st speed rpm : 1150 Customer-spec. information : MAN Rack travel in mm : 13.20...13.30 Customer : D2842LYE Del.quantity cm3/: 28.9...29.1 Engine 100 s: (28.6...29.4) 1st version kW : 735.0 : 2300 Rated speed cm3 : 0.5Spread TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 500
Rack travel in mm : 8.90...9.10
Del.quantity cm3/ : 14.9...15.1 inlet temp. . C : 38...42 Overflow valve 100 s: (14.6...15.4) : 1 417 413 025 cm3 : 0.8Spread 100 s: (1.2) Inlet press., bar: 1.50 3rd speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 5.2...6.0 *
100 s: (-) Test nozzle holder assembly : 1 688 901 019 Openina pressure, bar : 207...210 (B) Setting of injection pump with governor Orifice plate diameter mm : 0,8 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.20...1.40 travel mm : 1 680 750 067 : 450 Test lines 2nd speed rpm : 3.10...3.70 rpm : 750 : 5.80...6.20 rpm : 1150 travel mm Outside diameter 3rd speed x Wall thickness travel mm : 6.00x1.50x1000 x Length mm 4th speed : 9.50...9.70 travel mm rpm : 1400 (A) Injection pump setting values 5th speed : 13.00...14.00 Insp. values in parentheses travel mm Set equal delivery quant. GUIDE SLEEVE POSITION per values ___ Control-lever position Degree: -1 Speed rpm : 1200 Rack travel in mm : 15.20...17.80 BEGINNING OF DELIVERY

E08

Test pressure, bar: 25...27

FULL LOAD DELTY, AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1150 Speed 1st version Aneroid pressure h: 1300
Del.quantity : 289.0...291.0
1000 : (286.0...294.0)
Spread cm3 : 5.00
1000 : (9.00) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 149.0...151.0 1000 s: (146.0...154.0) cm3 : 8.00 Spread 1000 s: (12.0) RATED SPEED 1st version BREAKAWAY Control lever position degrees: 58...66 1st version 1mm rack travel less than Testing: 1st rack travel in: 12.20 full load rack tr: 12.20 Speed rpm : 1190...1200 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1275...1315 STARTING FUEL DELIVERY 4th rack travel in: 1400 Speed rpm : 0.00...1.00 Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 * 1000 s: (-) LOW IDLE 1 Control lever position degrees: 16...24 Speed rpm : 100 Del.quantity cm3/: - ** Testina: 1000 s: (-) rpm : 100 Speed Minimum rack trave: 8.90 Rack travel in mm : 17.50 Speed rpm: 250
Rack travel in mm: 7.30...7.50
Rack travel in mm: 2.00 HIGH IDLE rpm : 430...490 Speed 1st version Speed rpm : 500**
Rack travel in mm : <7.00 Aneroid/Altitude Del.quantity cm3/: <0 1000 s: (-) Compensator Test 1st version 2nd version Speed rpm : 500**
Rack travel in mm : <7.50 Settina rpm : 500 hPa : 1300 Speed Del.quantity cm3/: <50.0 1000 s: (-) Pressure Rack travel mm : 13.20...13.30 3rd version Measurement 1/min: 500 rpm : 500 Speed Speed Rack travel in mm: 8.20 1st pressure hPa : -Del.quantity cm3/: 125.0 Rack travel in m: 8.90...9.10
2nd pressure hPa : 100
Rack travel in m: 9.30...9.40
3rd pressure hPa : 470 LOW IDLE Speed rpm: 250 Rack travel in mm: 7.30...7.50 Rack travel in m: 11.80...12.20 Del.quantity cm3/ : 52.0...60.0 * 1000 s: (-) START CUT-OUT 1/min : 170 (190) Remarks: Speed E09

: MAN-NR. 2-7960

* applies to cylinders 4, 5, 6, 8, 10 and 12
** applies for cylinders 1, 2, 3, 7, 9 and 11

APPLICATION

Ship

: 4.50...4.60 : (4.45...4.65) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 12-1-5-9-8-3-Note remarks 4- 11- 10- 2- 6- 7 : MAN 21,0 c Test sheet : 07.07.89 Edition Replaces Test oil : ISO-4113 Phasing : 0-45-60-105-120-165-Combination no. : 0 402 640 816 180-225-240-285-300-Phasing : 345 Tolerance + - ., : 0.50 (0.75)Injection pump Pump designation : PE12P12OA52OLS7824 EP type number : 0 412 620 816 Time to cyl. no. : 12 Governor Governor design. : RQV250...1150PA902-3 Governor no. : 0 421 813 761 BASIC SETTING 1st speed rpm: 1150 Customer-spec. information Rack travel in mm : 12.00...12.10 Customer : MAN : D2842LXE Del.quantity cm3/: 24.9...25.1 Engine 1st version kW : 662.0 Rated speed : 2300 100 s: (24.6...25.4) Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil inlet temp. , C : 38...42 rpm : 500 2nd speed Rack travel in mm : 8.90...9.10 Del.quantity cm3/: 14.9...15.1 100 s: (14.6...15.4) Overflow valve : 1 417 413 025 cm3 : 0.8Spread 100 s: (1.2) Inlet press., bar: 1.50 rpm : 250 3rd speed Rack travel in mm : 7.30...7.50 Del.quantity cm3/ : 5.2...6.0 * Test nozzle holder assembly : 1 688 901 019 100 s: (-) Opening pressure, bar : 207...210 (B) Setting of injection pump with governor Orifice plate GUIDE SLEEVE TRAVEL diameter mm : 0,8 rpm : 250 1st speed travel mm : 1 680 750 067 rpm : 450 Test lines 2nd speed travel mm Outside diameter 3rd speed x Wall thickness travel mm : 6.00x1.50x1000 x Length mm

: 0.90...1.10 : 2.90...3.50 rpm : 750 : 5.50...5.90 4th speed rpm : 1150 travel mm : 9.20...9.40 5th speed rpm : 1400 : 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1225 Speed Rack travel in mm : 15.20...17.80

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1150 1st version Aneroid pressure h: 1300 Aneroid pressure h: -: 249.0...251.0 rpm : 500 Del.quantity Speed Del.quantity cm3/: 149.0...151.0 1000 : (246.0...254.0) : 5.00 1000 s: (146.0...154.0) Spread cm3 1000 : (9.00) Spread cm3 : 8.001000 s: (12.0) RATED SPEED 1st version **BREAKAWAY** Control Lever position degrees: 58...66 1st version 1mm rack travel less than Testina: 1st rack travel in: 11.00 full load rack tr: 11.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1190...1200 Speed Speed rpm : 1275...1315 4th rack travel in: 1400 STARTING FUEL DELIVERY Speed rpm : 0.00...1.00 rpm : 100 Speed Del.quantity cm3/: 100.0...120.0 * LOW IDLE 1 1000 s: (-) Control Lever position degrees: 16...24 Speed rpm : 100 Del.quantity cm3/: - ** 1000 s: (-) Testina: Speed rpm : 100 Rack travel in mm : 17.50 Minimum rack trave: 8.90 Speed rpm : 250 Rack travel in mm : 7.30...7.50 HIGH IDLE Rack travel in mm : 2.00 : 430...490 Speed rom 1st version rpm : 500** Speed Rack travel in mm : <7.00...0.00 Aneroid/Altitude Del.quantity cm3/ : <0 1000 s: (-) Compensator Test 1st version 2nd version rpm : 500** Setting Speed : 500 Rack travel in mm : <7.50 Speed rom Del.quantity cm3/: <50.0 1000 s: (-) Pressure hPa : 1300 : 13.20...13.30 Rack travel mm 3rd version Measurement 1/min: 500 rpm : 500 Speed Speed Rack travel in mm: 8.20 Del.quantity cm3/: 125.0 1st pressure hPa : -Rack travel in m: 8.90...9.10 1000 s: (-) 2nd pressure hPa : 100 Rack travel in m: 9.30...9.40 LOW IDLE 3rd pressure hPa : 400 Speed rpm : 250 Rack travel in mm : 7.30...7.50 Del.quantity cm3/ : 52.0...60.0 * 1000 s: (-) Rack travel in m: 11.30...11.70 START CUT-OUT 1/min : 170 (190) Speed

E12

Remarks:

: MAN-NR. 2-7959

* applies to cylinders 4, 5, 6, 8, 10 and 12 ** applies for cylinders 1, 2, 3, 7, 9 and 11

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MB 22,0 c : 07.07.89 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 640 817

Injection pump

Pump designation : PE12P12OA52OLS7826

: 0 412 620 817 EP type number

Governor

Governor design. : RQV350...1150PA870-4

: 0 421 813 717 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 444 LA Engine

: 736.0 : 2300 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 : (4.35...4.55) Prestroke mm

Rack travel in mm : 19.00...21.00 : 12- 1- 5- 9- 8- 3-Firing order

4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 31.0...31.2

100 s: (30.7...31.5)

cm3 : 0.6Spread

100 s: (1.0)

2nd speed rpm : 350.0 Rack travel in mm : 5.0...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

travel mm : 1.90...2.40

rpm : 500 2nd speed

: 3.00...3.50 travel mm

: 800 3rd speed rpm

: 4.30...4.80 travel mm

: 1200 4th speed rpm

: 8.30...8.80 travel mm

rpm : 1250 5th speed

: 9.30...9.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1275

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Aneroid pressure h: 1800 Del.quantity : 310.0...312.0 1000 : (307.0...315.0) : 6.00 Spread cm3 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testina: 1st rack travel in: 13.30 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1270...1300 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 10...18 Testing: Speed rpm : 250 Minimum rack trave: 7.00 : 350 Speed rpm Rack travel in mm : 5.00...5.60 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : : 7.60...7.90 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : 300 Rack travel in m: 9.00...9.10 2nd pressure hPa : 1100 Rack travel in m: 13.20...13.50 START CUT-OUT 1/min : 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

E15

1st version Aneroid pressure h: 1800 rpm : 750 Speed Del.quantity cm3/: 301.0...311.0 1000 s: (298.0...314.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: 1800 Speed rpm : 1150 Del.quantity cm3/ : 240.0...243.0 1000 s: (237.0...246.0) cm3 : 10.00Spread 1000 s: (15.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 120.0...122.0 1000 s: (117.0...125.0) Spread cm3 : 10.00 1000 s: (15.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : UNI 13,8 e : 23.06.89 : 26.2.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 646 859 Injection pump Pump designation : PE6P130A720RS7153 EP type number : 0 412 636 809 Governor Governor design. : RQV300...950PA883 Governer no. : 0 421 813 690 Customer-spec. information Customer : IVECO-UNIC Spread : 8210.42.300 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 : 1 680 750 075 Test lines Outside diameter x Wall thickness : 8.00x3.00x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values Speed BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

Prestroke mm

E16

: 5.00...5.10

: (4.95...5.15)

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 950 Rack travel in mm : 12.80...12.90 Del.quantity cm3/: 29.7...30.0 100 s: (29.3...30.3) cm3 : 0.6100 s: (1.0) 2nd speed rpm : 300.0 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 1.9...2.5 100 s: (1.5...2.9) cm3 : 1.0 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.50 travel mm 2nd speed rpm : 450 travel mm : 2.80...3.40 3rd speed rpm : 700 travel mm : 5.10...5.50
4th speed rpm : 950 : 7.10...7.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1000 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 950 Aneroid pressure h: 900
Del.quantity : 297.0...300.0
1000 : (293.5...303.5) cm3 : 6.00 Spread 1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testina:

1st rack travel in: 11.80 rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1085...1115 Speed

4th rack travel in: 1200 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 3...11

Testina:

Speed rpm : 100 Minimum rack trave: 6.30

Speed rpm: 300 Rack travel in mm: 3.70...3.90

CONSTANT REGULATION

rpm : 310...430 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom hPa : 900 Pressure

: 12.80...12.90 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.50

2nd pressure hPa : 500

Rack travel in m: 11.80...11.90

3rd pressure hPa : 380

Rack travel in m: 9.30...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 157.0...160.0 1000 s: (153.5...163.5)

BREAKAWAY

1st version

E17

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 990...1000

INTERMEDIATE RATED SPEED Rack travel in mm: 4.00

STARTING FUEL DELIVERY

: 100 Speed man

LOW IDLE

Speed rpm : 300 Rack travel in mm : 3.70...3.90 Del.guantity cm3/: 19.0...25.0

1000 s: (15.0...29.0)

cm3 : 10.00 Spread

1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA 9,0 L 2 Edition : 02.06.89 : 7.2.89 Replaces Test oil : ISO-4113 Combination no. : 0 402 646 860 Injection pump Pump designation : PE6P12OA32ORS7138 EP type number : 0 412 626 822 Governor Governor design. : RQV350...1100PA795-1 Governer no. : 0 421 813 693 Customer-spec. information Customer : SAAB-SCANIA Engine : DS9 52,53,54,55 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.40...4.50

: (4.35...4.55) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ., .: 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm: 700 1st speed Rack travel in mm : 12.20...12.30 Del.quantity cm3/ : 16.5...16.7 100 s: (16.2...17.0) Spread cm3 : 0.6100 s: (0.9) 2nd speed rpm : 350.0 Rack travel in mm : 4.5...4.9 Del.quantity cm3/ : 2.0...2.4 100 s: (-) cm3 : 0.3Spread 100 s: (0.6) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 2nd speed rpm : 350 : 1.30...1.70 travel mm rpm : 650 3rd speed : 4.10...4.70 travel mm rpm : 1145 4th speed : 7.80...8.00 travel mm rpm : 1255 5th speed : 8.80...9.20 travel mm GUIDE SLEEVE POSITION Control-Lever position Degree: -1 Speed rpm : 1180 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Del.quantity : 103.0...170.0) Spread cm3 : 6.00 : (9.00) 1000 RATED SPEED

E18

Prestroke mm

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

: 100 Speed rpm Minimum rack trave: 10.30

Speed rpm : 350 Rack travel in mm : 4.50...4.70

Rack travel in mm : 2.00

rpm : 370...430 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1100 Speed

Del.quantity cm3/: 163.0...171.0 1000 s: (161.0...173.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 270.0...320.0 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.50...4.70

Remarks:

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

E19

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

Scania test specifications taken over on Oct. 17, 1988

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 13, before TDC

Firing sequence of engine:

1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : SCA 9,0 L 3 Phasing : 0-60-120-180-240-300 Edition : 02.06.89 : 7.2.89 Replaces Tolerance + - ... : 0.50 (0.75)Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 646 861 BASIC SETTING Injection pump Pump designation : PE6P12OA32ORS7138 rpm : 700 1st speed EP type number : 0 412 626 822 Rack travel in mm : 12.20...12.30 Governor Governor design. : RQV300....925PA712-4 : 0 421 813 701 Del.quantity cm3/: 16.5...16.7 Governer no. 100 s: (16.2...17.0) Customer-spec. information Customer : SAAB-SCANIA cm3 : 0.6Spread Engine : DS9 52,53,54,55 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Rack travel in mm : 4.6...5.0 Del.quantity cm3/ : 2.0...2.4 Test oil inlet temp. .. C : 38...42 100 s: (-) cm3 : 0.3Overflow valve Spread : 1 417 413 025 100 s: (0.6)Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL rpm : 300 1st speed : 1.40...1.80 Opening | travel mm pressure, bar : 207...210 rpm : 350 2nd speed : 1.90...2.50 travel mm rpm : 650 Orifice plate 3rd speed : 4.70...5.30 diameter mm : 0,8 travel mm rpm : 970 4th speed : 8.40...8.60 travel mm Test lines : 1 680 750 015 5th speed rpm : 1045 : 9.30...9.70 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x1.50x600 Control-lever position Degree: -1 Speed rpm : 970 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version rpm : 700 Test pressure, bar: 25...27 Speed Del.quantity 1000 Speed : 165.0...167.0 Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 9.00...12.00 : (162.0...170.0) : 6.00 : (9.00) Spread cm3 1000

E20

RATED SPEED

1st version Control Lever

position degrees: 44...52

Testing:

1st rack travel in: 11.20 Speed rpm: 965...975 2nd rack travel in: 4.00

rpm : 1030...1060 Speed

4th rack travel in: 1150

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 12...20

Testing:

: 100 Speed rpm Minimum rack trave: 10.00 rpm : 300 Speed

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00

Speed : 330...390 rom

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100 Del.quantity cm3/ : 163.0...171.0 1000 s: (161.0...173.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

rpm : 965...975 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 270.0...320.0 Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

E21

3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1988-09-12

Start of delivery - engine: 13, before TDC

Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : FIA 17,2 e : 30.05.89 : 29.3.89 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 648 854 Injection pump Pump designation : PE8P130A920/5LS7822 EP type number : 0 412 638 802 Governor Governor design. : RQV300...950PA905 Governer no. : 0 421 813 723 Customer-spec. information Customer : IVECO-FIAT Engine : 8280.42.001 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 40...45 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test Lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.10...5.20

Rack travel in mm : 9.00...12.00

: (5.05...5.25)

```
Firing order : 1-8-4-3-6-5-7-2
Phasing : 0-45-90-135-180-225-
                      270-315
Tolerance + - ... : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed rpm: 550
Rack travel in mm : 11.70...11.80
Del.quantity cm3/: 23.7...24.0
              100 s: (23.3...24.3)
              cm3 : 0.8
Spread
              100 s: (1.2)
             rpm : 300.0
2nd speed
Rack travel in mm : 5.9...6.1
Del.quantity cm3/: 2.0...2.6
              100 s: (1.6...3.0)
              cm3 : 0.6
Spread
              100 s: (1.0)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
1st speed rpm : 300 travel mm : 1.20
                    : 1.20...1.40
2nd speed rpm : 425
travel mm : 3.20...3.80
3rd speed rpm : 650
  travel mm : 4.90...5.50
4th speed rpm : 950
travel mm : 7.90...8.10
5th speed rpm : 1200
                    : 11.00...12.00
  travel mm
GUIDE SLEEVE POSITION
Control-lever position
             Degree: -1
             rpm : 975
Speed
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed rpm : 550
Aneroid pressure h: 900
Del.quantity : 237.0...240.0
1000 : (233.5...243.5)
```

Prestroke mm

Spread cm3 : 8.00 1000 : (12.00)

RATED SPEED

1st version Control Lever

position degrees: 57...65

Testina:

1st rack travel in: 10.70 rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1075...1105 4th rack travel in: 1200

Speed rom : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rpm : 100 Minimum rack trave: 7.20 Speed Speed rpm : 300 Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

CONSTANT REGULATION

rpm : 320...425 Speed

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 500 man hPa : 900 Pressure

Rack travel mm : 11.70...11.80

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 440

Rack travel in m: 11.10...11.20 3rd pressure hPa : 400

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 950 Del.quantity cm3/ : 220.0...227.0 1000 s: (216.5...230.5)

Aneroid pressure h: -

E23

rpm : 500 Speed

Del.quantity cm3/: 173.0...176.0 1000 s: (169.5...179.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 990...1000

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 210.0...240.0 1000 s: (206.0...244.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 14,7 g 2 : 30.03.87 Test sheet Edition Replaces : 1.9.87

Test oil : ISO-4113

Combination no. : 0 402 678 804

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RSV350...1050P0A825-

: 0 421 833 261 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442A

: 255.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (4.15...5.35)

Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 15.70...15.80

Del.quantity cm3/: 24.1...24.3

100 s: (23.8...24.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm : 5.2...5.4

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Speed Del.quantity 1000 : 241.0...243.0

: (238.0...246.0)

Spread cm3

: 5.00 : (9.00) 1000

RATED SPEED

1st version

Control lever position degrees: 74...82 Testing: 1st rack travel in: 14.70 Speed rpm: 750...755 2nd rack travel in: 4.00 Speed rpm : 1135...1150 4th rack travel in: 1400 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 60...68 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.3 Testing: Speed : 100 rpm Minimum rack trave: 19.50 rpm : 350 Speed Rack travel in mm: 5.20...5.40
Rack travel in mm: 2.00
Speed rpm: 350...410 SET IDLE AUXILIARY SPRING Speed rpm : 2.00 TORQUE CONTROL 2nd speed rpm : 900 Rack travel in m: 13.20...13.40 3rd speed rpm : 1000 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 246.0...252.0 1000 s: (243.0...255.0) Spread cm3 : 8.001000 s: (12.0) STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 250.0...270.0 1000 s: (246.0...274.0) Remarks: **APPLICATION** Generator

E25

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 10,0 o 1 Edition : 08.05.89

Replaces :

Test oil : ISO-4113

Combination no. : 0 402 745 808

Injection pump

Pump designation : PES5P120A720LS7163

EP type number : 0 412 725 807

Governor

Governor design. : RQ300/1050PA774-4

Governer no. : 0 421 801 453

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM449 LA

1st version kW : 221.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. Values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 . (5.15 5.35)

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 600 Aneroid pressure h: 800

Del.quantity : 235.0...237.0 1000 : (232.0...240.0)

Spread cm3 : 5.00

1000 : (9.00)

1000 1 1710

RATED SPEED

1st version

Setting point: Speed rpm : 600

Speed rpm : 600 Rack travel in mm : 20.0

Testing: 1st rack travel in: 12.00 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.7 Testing: Speed rpm: 200
Minimum rack trave: 7.60
Speed rpm: 300
Rack travel in mm: 5.60...5.90
Rack travel in mm: 2.00 : 370...410 Speed rpm TORQUE CONTROL Dimension a mm : 0.65 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.00...13.20 ad speed rpm : 750 2nd speed Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 800 Pressure Rack travel mm : 13.60...13.80 Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...11.20 2nd pressure hPa : 450 Rack travel in m: 134.00...13.20 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 * 4th pressure hPa : 1125 Rack travel in m: 14.10...14.30 5th pressure hPa : -Rack travel in m: 10.00...10.40 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1400 : 1050 Speed rpm Del.quantity cm3/: 228.0...231.0 1000 s: (225.0...234.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1400 Speed rpm : 750 Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 Speed rpm : 1095...1110 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.75...2.85 : (2.70...2.90) Note remarks Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : MAC 12,0 a4 : 02.05.89 Test sheet Firing order Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 853 Tolerance + - ... : 0.50 (0.75)Injection pump Pump designation : PES6P120A720RS7157 Time to cyl. no. : 1 : 0 412 726 814 EP type number Governor BASIC SETTING Governor design. : RQV325...900PA909-1K Governer no. : 0 421 815 211 rpm: 900 1st speed Rack travel in mm : 13.80...13.90 Customer-spec. information Customer : MACK TRUCKS Del.guantity cm3/: 23.3...23.5 : E7-350 Engine 100 s: (23.0...23.8) 1st version kW : 261.0 : 1800 cm3 : 0.5Rated speed Spread TEST BENCH REQUIREMENTS 100 s: (0.9) 2nd speed rpm : 325.0
Rack travel in mm : 4.7...4.9
Del.quantity cm3/ : 4.0...4.6 Test oil inlet temp. ., C : 38...42 100 s: (3.8...4.8) Overflow valve : 2 417 413 011 Spread cm3 : 0.8100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 325 1st speed : 1.20...1.40 travel mm Opening rpm : 450 : 207...210 pressure, bar 2nd speed : 2.80...3.20 travel mm rpm : 650 3rd speed Orifice plate : 5.60...5.80 diameter mm : 0,6 travel mm rpm : 900 4th speed : 8.30...8.50 travel mm Test lines : 1 680 750 008 rpm : 1100 5th speed : 10.30...10.80 travel mm Outside diameter FULL LOAD DELIV. AT FULL LOAD STOP x Wall thickness : 6.00X2.00X600 x Length mm 1st version rpm : 900 (A) Injection pump setting values Speed Insp. values in parentheses Aneroid pressure h: 1200 Del.quantity : 233.5...235.5 1000 : (230.5...238.5) Spread cm3 : 5.00 1000 : (9.00) Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.80 Speed rpm: 940...950

2nd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

rpm : 275 Speed Minimum rack trave: 6.30 rpm : 325 Speed

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 13.80...13.90

rpm : 625 2nd speed

Rack travel in m: 13.50...13.70

3rd speed rpm : 500

Rack travel in m: 11.50...11.90

Aneroid/Altitude Compensator Test

1st version Setting

: 900 Speed rpm hPa : 1200 Pressure

: 13.80...13.90 Rack travel mm

Measurement

1/min: 900 Speed

1st pressure hPa : -Rack travel in m: 7.80...8.20

2nd pressure hPa : 325

Rack travel in m: 9.40...9.50

3rd pressure hPa : 685

Rack travel in m: 12.10...12.50

START CUT-OUT

1/min : 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625
Del.quantity cm3/ : 266.0...272.0
1000 s: (263.0...275.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 153.0...157.0 1000 s: (151.0...159.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 rpm

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 10.10...10.30

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0

1000 s: (38.0...48.0) cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension

3.0...3.2 mm.

Bow dimension:

Sliding-sleeve position = 37.0 mm

F01

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 D 3 Edition : 07.07.89 : 29.04.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 436 104 Injection pump Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 Governor Governor design. : RQV350...1200MW82-1 : 0 420 083 153 Governer no. Customer-spec. information : CUMMINS/US Customer : 6 CTA-830 Engine 1st version kW : 179.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test Lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

```
: 3.15...3.25
Prestroke mm
: (3.10...3.30)
Rack travel in mm : 9.00...12.00
                  : 1-5-3-6-2-4
Firing order
Phasing
                  : 0-60-120-180-240-300
Tolerance + - ... : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed rpm: 1200
Rack travel in mm : 12.00...12.10
Del.quantity cm3/: 13.6...13.8
             100 s: (13.4...14.0)
             cm3 : 0.3
Spread
             100 s: (0.6)
             rpm : 350.0
2nd speed
Rack travel in mm: 7.1...7.2
Del.quantity cm3/ : 1.2...1.6
             100 s: (1.0...1.8)
Spread
             cm3 : 0.3
             100 s: (0.5)
(B) Setting of injection pump
   with governor
GUIDE SLEEVE TRAVEL
1st speed rpm : 1250
  travel mm
                  : 7.60...7.80
                    1350
2nd speed
             rpm
                  : 8.60...9.00
 travel mm
                 : 350
3rd speed
             rpm
                  : 1.20...1.60
 travel mm
                 : 800
4th speed
             rpm
                  : 4.90...5.50
  travel mm
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed rpm : 1200
Aneroid pressure h: 700
Del.quantity
                 : 136.0...138.0
            1000 : (134.0...140.0)
                  : 3.50
Spread
            cm3
            1000
                 : (6.00)
```

RATED SPEED

1st version

BEGINNING OF DELIVERY Test pressure, bar: 30

per values

Test pressure, bar: 30...32

Control Lever position degrees: 42...50 Testina: 1st rack travel in: 11.00 Speed rpm : 1250...1260 2nd rack travel in: 4.00 rpm : 1375...1405 Speed 4th rack travel in: 1455 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.1 Testina: Speed : 100 rpm Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 7.10...7.20 CONSTANT REGULATION rpm : 360...500 Speed TORQUE CONTROL Torque control curve - 1st version t speed rpm : 1200 Rack travel in m: 12.00...12.10 1st speed : 750 rpm 2nd speed Rack travel in m: 12.50...12.60 rpm : 1000 3rd speed Rack travel in m: 12.00...12.10 4th speed rpm : 900 Rack travel in m: 12.10...12.30 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : Pressure Rack travel mm : 11.00...11.10 Measurement $1/\min : 500$ Speed 1st pressure hPa : 390 Rack travel in m: 11.40...11.50 2nd pressure hPa : 480 Rack travel in m: 11.90...12.20 3rd pressure hPa : 700 Rack travel in m: 12.50...12.60

Speed 1/min: 270 (280) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 750 Speed Del.guantity cm3/: 138.5...140.5 1000 s: (135.5...143.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 108.0...110.0 1000 s: (106.0...112.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1250...1260 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 205.0...225.0 1000 s: (202.0...228.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 7.10...7.20
Del.quantity cm3/ : 12.0...16.0
1000 s: (10.0...18.0) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark at 10, cam rotation angle after start of delivery,

cylinder 1

START CUT-OUT

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 F 1 Phasing Test sheet Edition : 10.02.89 Tolerance + - 2 : 0.50 (0.75)Replaces : ISO-4113 Test oil BASIC SETTING : 0 403 436 105 Combination no. 1st speed Injection pump Rack travel in mm : 11.90...12.00 Pump designation : PES6MW100/120RS1169 : 0 413 406 153 EP type number Del.guantity cm3/: 14.1...14.3 Governor Governor design. : RQV350...1200MW78-1 Governer no. : 0 420 083 156 cm3 : 0.3Customer-spec. information Spread Customer : CDC Engine : 6CTA830 2nd speed Rack travel in mm : 5.6...5.8 1st version kW : 197.0 Del.quantity cm3/: 1.6...2.0 Rated speed : 2400 cm3 : 0.3TEST BENCH REQUIREMENTS Spread Test oil inlet temp. ., C : 38...42 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL rpm : 1350 Test nozzle holder 1st speed assembly : 1 688 901 017 travel mm rpm : 1250 2nd speed **Opening** travel mm rpm : 800 pressure, bar : 207...210 3rd speed travel mm rpm : 350 Orifice plate 4th speed diameter mm : 0.6 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 1200 Aneroid pressure h: 600 x Wall thickness Del.quantity : 147.0...145.0) 1000 : (139.0...145.0) Shread cm3 : 3.50 : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____ RATED SPEED BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Control lever position degrees: 42...50

Testing:

Prestroke mm

F04

: 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 0-60-120-180-240-300 rpm: 1200 100 s: (13.9...14.5) 100 s: (0.6) rpm : 350.0 100 s: (1.4...2.2) 100 s: (0.5) : 8.60...9.00 : 7.60...7.80 : 4.90...5.50 : 1.20...1.60 1000 : (6.00) 1st rack travel in: 10.90

rpm : 1240...1250 Speed 2nd rack travel in: 4.00 speed rpm : 1385...1415 4th rack travel in: 1500 Speed Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring Speed rpm Rack travel in mm: 5.7 Testing: Speed : 100 rpm Minimum rack trave: 7.50 : 350 Speed rpm Rack travel in mm : 5.60...5.80 CONSTANT REGULATION : 370...500 Speed rom Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 300 mm : 11.00...11.10 Speed rpm Pressure Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80 2nd pressure hPa : 375 Rack travel in m: 11.50...11.80 3rd pressure hPa : 600 Rack travel in m: 11.90...12.00 START CUT-OUT 1/min: 270 (280) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 600 : 750 Speed rpm Del.quantity cm3/: 137.5...141.5 1000 s: (135.0...143.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 113.5...115.5 1000 s: (111.5...117.5)

Spread cm3 : 3.50 1000 s: (6.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 218.0...228.0

1000 s; (215.0...231.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Spread

Speed rpm : 350

Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (14.0...22.0)

cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5, cam angle

after start of delivery cyl. 1

F05

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 D12 : 0-60-120-180-240-300 Test sheet Phasing Edition : 30.05.89 : 07.04.89 Tolerance + - ... : 0.50 (0.75)Replaces Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 403 436 111 BASIC SETTING Injection pump Pump designation : PES6MW100/120RS1143 1st speed rpm: 1200 EP type number : 0 413 406 137 Rack travel in mm : 12.10...12.20 Governor Governor design. : RQV350...1200MW82-6 Governer no. : 0 420 083 184 Del.quantity cm3/ : 13.8...14.0 100 s: (13.6...14.2) Customer-spec. information : CUMMINS/US Customer cm3 : 0.3Spread : 6 CTA-830 Engine 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/ : 1.2...1.6 100 s: (1.0...1.8) Test oil inlet temp. ., C : 38...42 Overflow valve cm3 : 0.3Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL rpm : 1250 1st speed : 7.60...7.80 Opening | travel mm rpm : 1350 pressure, bar : 207...210 2nd speed : 8.60...9.00 travel mm rpm : 350 Orifice plate 3rd speed : 1.20...1.60 diameter mm : 0,6 travel mm rpm : 800 4th speed : 4.90...5.50 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00x2.00x600 rpm : 1200 x Length mm Speed Aneroid pressure h: 700 Del.quantity : 138.0...140.0 1000 : (136.0...142.0) Spread cm3 : 3.50 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY RATED SPEED Test pressure, bar: 30...32 1st version Prestroke mm : 3.15...3.25 : (3.10...3.30) Rack travel in mm : 9.00...12.00 Control lever position degrees: 42...50

F06

Testing: 1st rack travel in: 11.10 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1370...1400 4th rack travel in: 1455 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.2 Testing: Speed : 100 rpm Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 7.10...7.30 CONSTANT REGULATION rpm : 360...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 12.10...12.20 Rack travel in m: 12.10...12.20
Rack travel in m: 12.50...12.60
rd speed rpm : 1000
Rack travel in m: 12.10...12.20 2nd speed 3rd speed 4th speed rpm : 900 Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : -Pressure : 10.70...10.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 390 Rack travel in m: 11.00...11.10 2nd pressure hPa : 500 Rack travel in m: 11.60...11.90 3rd pressure hPa : 700 Rack travel in m: 12.50...12.60 START CUT-OUT 1/min: 270 (280) Speed FUEL DELIVERY CHARACTERISTICS

F07

1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/ : 139.0...142.0 1000 s: (136.5...144.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 100.0...102.0 1000 s: (98.0...104.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 205.0...225.0 1000 s: (202.0...228.0)

LOW IDLE

Speed rpm Rack travel in mm : 7.10...7.30 Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: C.D.C. #3916000

Firing order : 1- 3- 4- 2 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VOL 4,5 K Test sheet Edition : 30.05.89 : 19.12.88 Replaces Test oil : ISO-4113 Combination no. : 0 403 444 108 Injection pump Pump designation : PES4MW100/320RS1116 : 0 413 404 102 EP type number Governor Governor design. : RQV300...1100MW51 Governer no. : 0 420 083 072 Customer-spec. information Customer : VOLVO-BM : TD45-EM Engine 1st version kW : 85.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.20...3.30

Rack travel in mm : 9.00...12.00

: (3.15...3.35)

```
: 0-90-180-270
Phasing
Tolerance + - ... : 0.50 (0.75)
BASIC SETTING
                rpm: 700
1st speed
Rack travel in mm : 12.50...12.60
Del.quantity cm3/: 11.6...11.8
               100 s: (11.4...12.0)
Spread
               cm3 : 0.3
               100 s: (0.6)
2nd speed rpm : 300.0
Rack travel in mm : 5.8...5.9
Del.quantity cm3/ : 1.3...1.7
100 s: (1.0...1.9)
Spread cm3 : 0.3
               100 s: (0.5)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
              rpm : 1220
1st speed
              : 9.20...9.60
rpm : 1150
  travel mm
2nd speed
                    : 8.40...8.60
  travel mm
              rpm : 420
3rd speed
                    : 1.70...2.30
  travel mm
              rpm : 300
4th speed
                    : 1.00...1.40
  travel mm
GUIDE SLEEVE POSITION
Control-lever position
             Degree: -1
              rpm : 1100
Speed
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed rpm: 700
Aneroid pressure h: 750
Del.quantity: 116.0...118.0
Del.quantity : 710.0...120.0)
                   : 3.50
Spread
             cm3
             1000
                   : (6.00)
RATED SPEED
```

F08

Prestroke mm

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm : 5.8 Testing: : 100 Speed rpm Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 5.80...5.90 CONSTANT REGULATION rpm : 330...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 700 Speed rpm Pressure hPa : 265 : 10.60...10.70 Rack travel mm Measurement 1/min: 700 Speed 1st pressure hPa : 750 Rack travel in m: 12.5...12.60 2nd pressure hPa : -Rack travel in m: 10.50...10.60 3rd pressure hPa : 520 Rack travel in m: 12.40...12.60 START CUT-OUT Speed 1/min : 220 (250) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 rpm_ : 1000 Speed Del.quantity cm3/: 117.0...121.0 1000 s: (114.5...123.5)

Spread cm3: 5.50 1000 s: (6.0) Aneroid pressure h: -Speed rpm: 700 Del.quantity cm3/: 79.0...81.0 1000 s: (76.5...83.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.80...5.90 Del.quantity cm3/ : 13.0...17.0 1000 s: (10.5...19.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

:

F09

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 8,8 F Edition : 09.06.89 : 04.86 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 129 Injection pump Pump designation : PES6MW100/320RS1016 EP type number : 0 413 406 010 Governor Governor design. : RQV300...1400MW25-2 Governer no. : 0 420 083 048 Customer-spec. information Customer : RVI : MIDRO6.02-12 Engine 1st version kW : 125.0 : 2800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 173...176 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 BASIC SETTING 1st speed rpm : 1400 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 9.1...9.3 100 s: (8.9...9.5) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1400 Aneroid pressure h: 700 Del.quantity : 91.0...95.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 10.10 Speed rpm : 1450...1460 2nd rack travel in: 4.00 Speed rpm : 1565...1595 4th rack travel in: 1700

rpm : 0.00...1.00

Speed

LOW IDLE 1

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15) Rack travel in mm : 9.00...12.00

F10

Control Lever position degrees: 9...17 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 4.7 : 300 Speed rpm Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 rpm : 490...550 : 200 Speed rpm Maximum rack trave: 7.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 500 Pressure : 11.10...11.20 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 9.40...9.50 2nd pressure hPa : 120 Rack travel in m: 9.90...10.00

3rd pressure hPa : 155

Rack travel in m: 10.70...10.80 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 900 Speed Del.quantity cm3/: 86.0...90.0 1000 s: (84.0...92.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -

rpm_ : 500 Speed Del.quantity cm3/: 52.0...54.0 1000 s: (50.0...56.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 94.0...104.0 1000 s: (91.0...107.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 15.0...19.0 1000 s: (12.5...21.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark is 8, after start of delivery with control-rod travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 K 4

Edition : 09.06.89 : 12.09.86 Replaces : ISO-4113 Test oil

Combination no. : 0 403 446 164

Injection pump

Pump designation : PES6MW100/320RS1016

EP type number : 0 413 406 010

Governor

Governor design. : RQV300...1300MW25-4 Governer no. : 0 420 083 094

Customer-spec. information Customer : RVI

Engine : MIDRO6.02-12

1st version kW : 113.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 173...176

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.20...6.40 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

Del.quantity : 85.5...87.5 1000 : (83.5...89.5) Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.80

rpm : 1370...1380 Speed

2nd rack travel in: 4.00

Speed rpm : 1485...1515 4th rack travel in: 1650

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever position degrees: 8...16 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm: 4.5 rpm : 300 Speed Rack travel in mm : 6.20...6.40 Speed rpm : 200 Maximum rack trave: 3.20 CONSTANT REGULATION rpm : 340...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : 143 : 10.50...10.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 700 Rack travel in m: 10.80...10.90 2nd pressure hPa : -Rack travel in m: 9.80...9.90 3rd pressure hPa : 115 Rack travel in m: 9.80...10.10 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 900 Speed Del.quantity cm3/: 82.0...86.0 1000 s: (80.0...88.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 9.80 Speed rpm : 1370...1380

F13

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.20...6.40 Del.quantity cm3/ : 14.0...18.0 1000 s: (11.5...20.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 N 6 : 28.06.89 : 29.03.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 166 Injection pump Pump designation : PES6MW100/720RS1133 : 0 413 406 126 EP type number Governor Governor design. : RQ325/1325MW65 Governer no. : 0 420 082 018 Customer-spec. information Customer : KHD : BF 6L 913 BW Engine 1st version kW : 124.0 : 2650 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75)BASIC SETTING rpm: 1325 1st speed Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 10.2...10.4 100 s: (10.0...10.6) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.1 Del.quantity cm3/ : 1.1...1.5 100 s: (0.9...1.7) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 8.60...9.20 travel mm : 1380 2nd speed rpm : 6.50...6.70 travel mm rpm : 425 3rd speed : 4.00...4.40 travel mm : 300 : 2.00...2.40 4th speed rpm travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 700 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1325 Speed Aneroid pressure h: 800 Del.quantity : 102.0...106.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED

Firing order : 1-5-3-6-2-4

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)
Rack travel in mm : 9.00...12.00

1st version Control lever position degrees: 26...34 Setting point: Speed rpm : 700 Rack travel in mm : 20.0 Testing: 1st rack travel in: 10.10 Speed rpm : 1370...1385 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 Speed rom : 0.10...1.00LOW IDLE 1 Control Lever position degrees: 8...16 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.0 Testina: rpm : 100 Speed Minimum rack trave: 8.60 rpm : 300 Rack travel in mm : 7.00...7.10 CONSTANT REGULATION rpm : 340...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 450 Pressure Rack travel mm : 10.50...10.60 Measurement $1/\min : 500$ Speed 1st pressure hPa : 800 Rack travel in m: 11.10...10.20 2nd pressure hPa : -Rack travel in m: 9.40...9.50 3rd pressure hPa : 350 Rack travel in m: 9.90...10.20 FUEL DELIVERY CHARACTERISTICS

Spread cm3: 3.50
1000 s: (7.0)
Aneroid pressure h: Speed rpm: 500
Del.quantity cm3/: 56.0...58.0
1000 s: (54.0...60.0)

RACK STOP ADJUSTMENT
Speed rpm: 100

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1370...1385

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...140.0 1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.10
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

1st version

Aneroid pressure h: 800

Speed rpm: 850 Del.quantity cm3/: 94.0...98.0

1000 s: (92.0...100.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PEN 6,1 P 3 Edition : 28.06.89 : 06.11.87 Replaces Test oil : ISO-4113 : 0 403 446 167 Combination no. Injection pump Pump designation : PES6MW100/320RS1136 : 0 413 406 128 EP type number Governor Governor design. : RQV350...1100MW54-2 Governor no. : 0 420 083 096 Customer-spec. information Customer : VOLVO : TD 61 Engine : 111.0 : 2200 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

```
: 0-60-120-180-240-300
Phasing
Tolerance + - ... : 0.50 (0.75)
BASIC SETTING
               rpm: 700
1st speed
Rack travel in mm : 12.40...12.50
Del.quantity cm3/: 11.0...11.2
              100 s: (10.8...11.4)
             cm3 : 0.3
Spread
              100 s: (0.6)
             rpm : 350.0
2nd speed
Rack travel in mm : 6.3...6.4
Del.quantity cm3/ : 1.6...2.0
              100 s: (1.4...2.2)
              cm3 : 0.3
Spread
              100 s: (0.5)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
SUIDE SLEEVE TRAVEL

1st speed rpm : 1210

travel mm : 9.50...9.90
             rpm : 1150
2nd speed
                   : 8.60...8.80
  travel mm
             rpm : 550
3rd speed
                   : 2.30...2.90
  travel mm
                   : 300
4th speed
             rom
                   : 0.70...1.10
  travel mm
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -1
             rpm : 1150
Speed
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
             rpm : 700
Aneroid pressure h: 1000
Del.quantity : 7:0.0....114.0)
                  : 3.50
Spread
            cm3
            1000 : (6.00)
RATED SPEED
```

Firing order : 1-5-3-6-2-4

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.00...3.10

: (2.95...3.15)

1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 11.40 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1350 rpm : 0.10...1.00Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring : 350 rpm Rack travel in mm : 6.3 Testina: Speed rom : 100 Minimum rack trave: 7.80 : 350 Speed rom Rack travel in mm : 6.30...6.40 CONSTANT REGULATION rpm : 370...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 440 Pressure : 12.10...12.20 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.90...11.00 2nd pressure hPa : 230 Rack travel in m: 11.10...11.40 3rd pressure hPa : 1000 Rack travel in m: 12.40...12.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 1000 rpm Del.quantity cm3/: 111.0...115.0 1000 s: (109.0...117.0) cm3 : 3.50Spread 1000 s: (7.0) Aneroid pressure h: -

: 700

rpm

Del.quantity cm3/: 82.0...84.0 1000 s: (80.0...86.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 140.0...160.0 1000 s: (137.0...163.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 6.30...6.40 Del.quantity cm3/: 16.0...20.0 1000 s: (14.0...22.0)

cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

F17

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 34 : 16.06.89 Test sheet Edition : 05.08.88 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 184 Injection pump Pump designation : PES6MW100/720RS1144 : 0 413 406 138 EP type number Governor Governor design. : RQV300...1300MW48-3 Governer no. : 0 420 083 121 Customer-spec. information Customer : DR : 0M366A Engine 1st version kW : 125.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.70...3.80

Rack travel in mm : 9.00...12.00

: (3.65...3.85)

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-130-240-300 BASIC SETTING 1st speed rpm : 1300 Rack travel in mm : 10.90...11.00 Del.guantity cm3/: 7.2...7.4 100 s: (7.0...7.6) Spread cm3 : 0.3100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm : 7.8...7.9 Del.quantity cm3/: 0.9...1.3 100 s: (0.6...1.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.50...8.70 travel mm rpm : 1450 2nd speed : 9.30...9.70 travel mm : 500 3rd speed rpm : 2.70...3.30 travel mm : 300 4th speed rpm : 1.20...1.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1350 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Del.quantity : (2.0...76.0)

1000 : (70.0...76.0)

Spread cm3 : 3.50

1000 : (6.00) RATED SPEED

1st version

F18

Prestroke mm

Control lever position degrees: 50...58 Testing: 1st rack travel in: 9.90 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 7.8 Testina: rpm : 100 Speed Minimum rack trave: 9.30 Speed rpm : 300 Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.90...11.00 ad speed rpm : 800 2nd speed Rack travel in m: 11.60...11.80 rpm : 585 3rd speed Rack travel in m: 11.80...12.00 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 800 beed rom Del.quantity cm3/: 71.0...73.0 1000 s: (69.0...75.0) cm3 : 5.00 Spread 1000 s: (7.0) : 585 Speed rpm Del.quantity cm3/: 65.0...68.0 1000 s: (62.5...70.5) cm3 : 5.00Spread 1000 s: (7.00)

BREAKAWAY

F19

1st version

1mm rack travel less than full load rack tr: 9.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 300 Speed rpm Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 N 9 Edition : 28.06.89 : 29.03.89 Replaces Test oil : ISO-4113 : 0 403 446 186 Combination no. Injection pump Pump designation : PES6MW100/720RS1133 EP type number : 0 413 406 126 Governor Governor design. : RQV325...1325MW79 Governer no. : 0 420 083 123 Customer-spec. information : KHD Customer : BF 6L 913 Engine 1st version kW : 124.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0.681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.50...3.60

: (3.45...3.65) Rack travel in mm : 9.00...12.00

```
Firing order : 1-5-3-6-2-4
Phasing
                   : 0-60-120-180-240-300
Tolerance + - \dots : 0.50 (0.75)
BASIC SETTING
             rpm : 1325
1st speed
Rack travel in mm : 10.50...10.60
Del.quantity cm3/: 10.1...10.3
             100 s: (9.9...10.5)
             cm3 : 0.3
Spread
             100 s: (0.6)
             rpm : 325.0
2nd speed
Rack travel in mm : 6.8...6.9
Del.quantity cm3/: 1.1...1.5
              100 s: (0.9...1.7)
             cm3 : 0.3
Spread
             100 s: (0.5)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
1st speed rpm : 1375
                  : 8.70...8.90
  travel mm
2nd speed rpm : 1430
                  : 9.50...9.90
  travel mm
  rd speed rpm : 325
travel mm : 1.50...1.90
3rd speed
4th speed rpm : 600
                  : 2.70...3.30
  travel mm
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -1
Speed rpm : 1400
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
             rpm : 1325
Speed
Aneroid pressure h: 900
Del.quantity : 101.0...103.0
1000 : (99.0...105.0)
Spread cm3 : 3.50
1000 : (6.00)
RATED SPEED
```

Prestroke mm

1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 9.50 rpm : 1370...1380 Speed 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 Speed rpm : 0.10...1.00 LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.8 Testina: rpm : 100 Speed Minimum rack trave: 8.60 rpm : 325 Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rpm : 350...650 Speed Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 500 Pressure hPa : 450 Rack travel mm : 9.90...10.00 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 8.90...9.00 2nd pressure hPa : 350 Rack travel in m: 9.30...9.60 3rd pressure hPa : 900 Rack travel in m: 10.50...10.60 START CUT-OUT 1/min : 245 (255) Speed FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 3.501000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 57.0...59.0 1000 s: (55.0...61.0) RACK STOP ADJUSTMENT Speed rpm : 100 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.50 Speed rpm : 1370...1380 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE rpm : 325 Speed

Rack travel in mm : 6.80...6.90 Del.quantity cm3/: 11.0...15.0 1000 s: (9.0...17.0) Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

1st version

Aneroid pressure h: 900 Speed rpm : 850

Del.quantity cm3/: 93.0...97.0 1000 s: (91.0...99.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: RVI 8,8 Q Test sheet : 23.06.89 Edition : 07.02.89 Replaces : ISO-4113 Test oil

: 0 403 446 190 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1154

: 0 413 406 144 EP type number

Governor

Governor design. : RQV275...1250MW80

Governer no. : 0 420 083 128

Customer-spec. information Customer : RVI

: MIDR 060226 Engine

: 128.7 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 16.50...19.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 275.02nd speed

Rack travel in mm : 6.10...6.30

Del.quantity cm3/: 2.3...2.7 100 s: (2.0...2.9) Spread cm3: 0.3 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm

2nd speed

: 9.20...9.60 rpm : 1300 : 7.80...8.00 travel mm

rpm : 500 3rd speed

: 3.00...3.60 travel mm

rpm : 275 4th speed

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1360 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 800

Del.quantity : 99.5...103.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Speed rpm : 500 Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) Control lever position degrees: 48...56 Testing: 1st rack travel in: 12.00 Speed rpm : 1330...1350 BREAKAWAY 2nd rack travel in: 4.00 1st version rpm : 1490...1530 Speed 1mm rack travel less than 4th rack travel in: 1600 rpm : 0.00...1.00 Speed full load rack tr: 12.00 Speed rpm : 1330...1350 LOW IDLE 1 Control lever STARTING FUEL DELIVERY position degrees: 12...20 Setting point w/out bumper spring rpm : 275 rpm : 100 Speed Rack travel in mm: 6.8 Del.quantity cm3/: 88.0...102.0 1000 s: (85.0...105.0) Rack travel in mm : 19.50...21.00 Testina: Speed rpm : 200 Minimum rack trave: 7.70 LOW IDLE Speed rpm: 275 Rack travel in mm: 6.10...6.30 rpm : 275 Speed Rack travel in mm : 6.10...6.30 Del.quantity cm3/ : 23.0...27.0 Aneroid/Altitude Compensator Test 1000 s: (20.5...29.5) cm3 : 3.50Spread 1000 s: (5.00) 1st version Settina Remarks: : 500 Speed rpm hPa : 800 Pressure Rack travel mm : 12.90...13.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.00...11.10
2nd pressure hPa : 200
Rack travel in m: 11.50...11.80
3rd pressure hPa : 360 Rack travel in m: 12.60...12.70 START CUT-OUT Speed 1/min: 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 rpm : 750 Del.quantity cm3/: 91.5...94.5 1000 s: (89.0...97.0) : 5.00 Spread cm3 1000 s: (7.0)

Aneroid pressure h: -

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 2 Edition : 31.03.89

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 220

Injection pump

Pump designation : PES6MW100/320RS1171 EP type number : 0 413 406 156

Governor

Governor design. : RQV300...1400MW80-3

Governer no. : 0 420 083 183

Customer-spec. information Customer : RVI

: MIDR 06.02.12D Engine

1st version kW : 134.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 173...176

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)
Rack travel in mm : 9.00...12.00

F24

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 12.60...12.70

Del.guantity cm3/: 9.2...9.4

100 s: (9.0...9.6)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1590

: 9.50...9.90 travel mm

2nd speed : 1450 rpm

: 8.50...8.70 travel mm

3rd speed : 500 rpm : 2.80...3.40 travel mm

4th speed : 300 rpm

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 750

: 92.0...94.0 Del.quantity 1000 : (90.0...96.0)

Spread cm3 : 3.50

1000

: (6.00)

RATED SPEED

1st version

Control lever

position degrees: 63...71

Testing:

1st rack travel in: 11.60

rpm : 1470...1480 Speed 2nd rack travel in: 4.00 speed rpm : 1600...1630 4th rack travel in: 1700 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring Speed rpm Rack travel in mm: 5.8 Testina: Speed : 200 man Minimum rack trave: 8.20 rpm : 300 Rack travel in mm : 6.70...6.90 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rom hPa : -Pressure : 11.90...12.00 Rack travel mm Measurement

1/min: 500 Speed

1st pressure hPa : 80 Rack travel in m: 10.40...10.50 2nd pressure hPa : 200 Rack travel in m: 11.80...12.10

3rd pressure hPa : 750

Rack travel in m: 12.60...12.70

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 750 rpm : 900 Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) cm3 : 5.00Spread

1000 s: (7.0) Aneroid pressure h: -

Speed rpm : 500 Del.quantity_cm3/ : 42.0...44.0 1000 s: (40.0...46.0)

BREAKAWAY

F25

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1470...1480 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 95.0...115.0 1000 s: (92.0...118.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 15.0...19.0 1000 s: (12.5...21.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark mode with prestroke 3.00...3.10 mm at barrel 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 Q : 23.06.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 456 105 Injection pump Pump designation : PES6MW100/321RS1186 EP type number : 0 413 406 168 Governor Governor design. : RQ250/1200MW84-2 Governer no. : 0 420 082 040 Customer-spec. information Customer : MAN : D 0826 LUH Engine 1st version kW : 157.0 Rated speed : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 12.6...12.8 100 s: (12.4...13.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.9...2.3 100 s: (1.6...2.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1280 : 9.50...9.90 travel mm 2nd speed rpm : 1250 travel mm : 7.50...7.70 3rd speed rpm : 350 travel mm : 5.20...5.80 4th speed rpm : 250 travel mm : 2.30...2.70 GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 14.70...16.30 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1000
Del.quantity : 126.0...128.0
1000 : (124.0...130.0)
Spread cm3 : 3.50 1000 : (6.00)

per values

: 3.60...3.70 Prestroke mm : (3.55...3.75) Rack travel in mm : 15.00...0.00

RATED SPEED	+ 3rd pressure hPa : 1000 + Rack travel in m: 12.5012.60
1st version Control lever position degrees: 3442	START CUT-OUT
Setting point: Speed rpm : 600 Rack travel in mm : 15.5	Speed 1/min: 180 (200) FUEL DELIVERY CHARACTERISTICS
Testing: 1st rack travel in: 10.50 Speed rpm : 12451260 2nd rack travel in: 4.00 Speed rpm : 12701300 4th rack travel in: 1450 Speed rpm : 0.001.00	1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 124.0127.0 1000 s: (121.5129.5) Spread cm3 : 5.00 1000 s: (7.0)
LOW IDLE 1 Control lever position degrees: 816 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 5.3	Aneroid pressure h: 1000 Speed rpm: 800 Del.quantity cm3/: 124.0127.0 1000 s: (121.5129.5) Aneroid pressure h: 1000 Speed rpm: 1200 Del.quantity cm3/: 124.5127.5 1000 s: (122.0130.0)
Testing: Speed rpm : 100 Minimum rack trave: 7.30 Speed rpm : 250 Rack travel in mm : 5.205.40	Aneroid pressure h: - Speed rpm : 500 Del.quantity cm3/: 74.076.0 1000 s: (72.078.0)
TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.0012.10 2nd speed rpm : 600 Rack travel in m: 12.5012.60 3rd speed rpm : 800 Rack travel in m: 12.5012.60 4th speed rpm : 1200 Rack travel in m: 11.5011.60 Aneroid/Altitude Compensator Test	BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.50 Speed rpm : 12451260 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0140.0 1000 s: (127.0143.0)
1st version Setting Speed rpm : 500 Pressure hPa : 200 Rack travel mm : 9.609.70 Measurement Speed 1/min : 500	LOW IDLE Speed rpm: 250 Rack travel in mm: 5.205.40 Del.quantity cm3/: 19.023.0 1000 s: (16.525.5) Spread cm3: 3.50 1000 s: (5.50)
1st pressure hPa : - Rack travel in m: 9.309.40 2nd pressure hPa : 400 Rack travel in m: 10.9011.20	Remarks: Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CUM 8,3 E 1 : 03.07.89 Test sheet

Edition Replaces : 07.02.89 Test oil : ISO-4113

: 0 403 466 107DA Combination no.

Injection pump

Pump designation : PES6MW100/120RS1148

EP type number : D 413 406 143

Governor

: RSV400...900MW7A319-Governor design.

: 0 420 085 082 Governer no.

Cust. part no. : 3909342

Customer-spec. information

Customer : CUMMINS/US

Engine : 6 CTA

1st version kW : 171.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.60...3.70 : (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 13.00...13.10

Del.guantity cm3/: 17.9...18.1

100 s: (17.7...18.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 179.5...181.5 Del.quantity

1000 : (177.5...183.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Setting point:

Speed 008: mar

Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.00 rpm : 790...800 Speed 2nd rack travel in: 4.00 rpm : 820...850 Speed 4th rack travel in: 1000 rpm : 0.30...1.70 Speed LOW IDLE 1 Control Lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Speed Rack travel in mm: 6.1 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 Speed rpm : 790...800 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed : 400 rpm Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark 9, cam angle after start of delivery cyl. 1.

Starting/full-load transition speed

from holding magnet = 500 1/min.

GO2

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.45...3.55 Note remarks : (3.40...3.60) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : CUM 8,3 I 1 : 23.06.89 Test sheet Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 : 0 403 466 118 Combination no. Tolerance + - ... : 0.50 (0.75)Injection pump Pump designation : PES6MW100/120RS1178 Time to cyl. no. : 1 EP type number : 0 413 406 160 BASIC SETTING Governor : RSV425...1250MW2A332 Governor design. rpm : 1250 1st speed : 0 420 085 111 Governer no. Rack travel in mm : 13.70...13.80 Customer-spec. information Del.guantity cm3/: 14.7...14.9 : CUMMINS Customer : 6 CT 100 s: (14.5...15.1) Engine : 204.0 : 2500 1st version kW Spread cm3 : 0.3Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 425.0 2nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.1...1.5 Test oil inlet temp. , C : 38...42 100 s: (0.8...1.7) cm3 : 0.3Overflow valve Spread 100 s: (0.5) : 1 417 413 047 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Test nozzle holder rpm : 800 : 1 688 901 017 assembly Rack travel in mm : 0.30...1.00 Opening : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar Orifice plate 1st version rpm : 1250 : 0,6 diameter mm Speed Aneroid pressure h: 900 Del.quantity : 147.0...149.0 1000 : (145.0...151.0) cm3 : 3.50 : 1 680 750 014 Test lines Spread 1000 : (6.00) Outside diameter x Wall thickness : 6.00X2.00X600 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. position degrees: 55...63 per values ____ Setting point: BEGINNING OF DELIVERY Speed rpm : 800 Rack travel in mm : 0.6 Test pressure, bar: 30...32

G03

Testing:

1st rack travel in: 12.70

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1405...1435 4th rack travel in: 1650

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control Lever

position degrees: 30...38

Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 5.0

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00

Speed : 425 rom

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00 Speed rpm : 540...600

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : -Pressure

: 10.60...10.70 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : 305 Rack travel in m: 11.60...11.70

2nd pressure hPa : 465

Rack travel in m: 12.90...13.20 3rd pressure hPa : 900

Rack travel in m: 13.70...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 92.5...94.5

1000 s: (90.5,..96.5)

cm3 : 5.00 Spread

1000 s: (7.00)

BREAKAWAY

G04

1st version

1mm rack travel less than

full load rack tr: 12.70

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 150.0...170.0

1000 s: (147.0...173.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 425 Speed rpm

Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: C.D.C. #3913733

Start-of-delivery mark at 14, angular displacement of the cam after start of delivery of cylinder 1

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.60...3.70 : (3.55...3.75) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : CUM 8,3 E 3 : 23.06.89 : 1-5-3-6-2-4 Test sheet Firing order Edition Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 403 466 119 Tolerance + -., .: 0.50 (0.75) Injection pump Pump designation : PES6MW100/120RS1148 Time to cyl. no. : 1 EP type number : 0 413 406 143 Governor BASIC SETTING : RSV400...750MW7A319-Governor design. rpm: 750 1st speed : 0 420 085 120 Governer no. Rack travel in mm : 13.00...13.10 Customer-spec. information Del.guantity cm3/: 17.9...18.1 Customer : CUMMINS 100 s: (17.7...18.3) Engine : 6 CTA : 180.0 cm3 : 0.31st version kW Spread : 1500 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 400.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. _ C : 38...42 cm3 : 0.3Overflow valve Spread : 1 417 413 047 100 s: (0.5) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate 1st version diameter mm : 0,6 Speed Del.quantity Test lines : 1 680 750 014 cm3 Spread Outside diameter RATED SPEED x Wall thickness : 6.00X2.00X600 x Length mm 1st version (A) Injection pump setting values Control lever Insp. values in parentheses Set equal delivery quant. per values

Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 750 : 179.5...181.5 1000 : (177.5...183.5) : 3.50 1000 : (6.00) position degrees: 40...48 Setting point: rpm Speed Rack travel in mm : 0.6

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Testing: 1st rack travel in: 12.00 rpm : 790...800 Speed 2nd rack travel in: 4.00 Speed rpm: 820...850 4th rack travel in: 1000 Speed rpm : 0.30...1.70LOW IDLE 1 Control Lever position degrees: 20...28 Setting point w/out bumper spring Speed rpm Rack travel in mm: 6.1 Testina: Speed : 100 rpm Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 790...800 Speed STARTING FUEL DELIVERY Speed man : 100 Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 1000 s: (13.5...22.5) cm3 : 3.50 1000 s: (5.50)

Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 16.0...20.0 Spread

Remarks:

: C.D.C. #3914872

Start-of-delivery mark 9, cam angle after start of delivery cyl. 1.

Starting/full-load transition speed from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 5,5 A 1 Test sheet : 13.06.88 : 12.09.86 Edition Replaces Test oil : ISO-4113 : 0 403 476 013 Combination no. Injection pump Pump designation : PES6MW80/320RS1104 : 0 413 486 002 EP type number Governor : RSV300...1450MW0A801 Governor design. : 0 420 085 067 Governer no. Customer-spec. information Customer : RVI Engine : MD060212 1st version kW : 97.8 : 2900 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 2 417 413 028 Inlet press., bar: 2.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 173...176 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

```
: 0-60-120-180-240-300
Phasing
BASIC SETTING
              rpm: 900
1st speed
Rack travel in mm : 11.20...11.30
Del.quantity cm3/ : 5.2...5.4
             100 s: (5.0...5.6)
             cm3 : 0.2
Spread
             100 s: (0.4)
2nd speed
             rpm : 300.0
Rack travel in mm : 6.60...6.70

Del.quantity cm3/ : 1.2...1.5

100 s: (1.1...1.7)

Spread cm3 : 0.2
             100 s: (0.3)
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -3
             rpm : 800
Speed
Rack travel in mm : 0.30...1.00
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
             rpm : 900
Speed
Del.quantity : 52.5...56.5)
            cm3 : 2.50
1000 : (4.00)
Spread
RATED SPEED
1st version
Control lever
 position degrees: 56...64
Setting point:
Speed
            rpm
Rack travel in mm : 0.6
Testing:
1st rack travel in: 9.20
           rpm : 1520...1530
  Speed
2nd rack travel in: 4.00
           rpm : 1615...1645
  Speed
```

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 1.75...1.85 : (1.70...1.90)

4th rack travel in: 1700 Speed rpm : 0.80...1.70 LOW IDLE 1 Control lever position degrees: 29...37 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 4.5 Speed : 300 rpm Rack travel in mm : 6.60...6.70 Speed rpm Maximum rack trave: 8.00 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 11.20...11.30 rpm : 1450 2nd speed Rack travel in m: 10.20...10.30 3rd speed rpm : 1100 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version : 1450 Speed rpm Del.quantity cm3/: 54.5...56.5 1000 s: (52.5...58.5) Spread cm3 : 3.50 1000 s: (4.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1520...1530 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 67.0...77.0 1000 s: (64.0...80.0) Rack travel in mm : 0.00...15.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 12.5...15.5 1000 s: (11.0...17.0) Spread cm3 : 2.00 1000 s: (3.50) Remarks:

GO8

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 M Phasing : 0-60-120-180-240-300 : 28.06.89 Edition : 29.03.89 Tolerance + - ... : 0.50 (0.75)Replaces Test oil : ISO-4113 BASIC SETTING : 0 403 476 060 Combination no. 1st speed rpm: 1150 Injection pump Rack travel in mm : 12.80...12.90 Pump designation : PES6MW100/720RS1161 : 0 413 406 148 EP type number Del.guantity cm3/: 12.3...12.5 Governor Governor design. : RSV325...1150MW5A327 : 0 420 085 084 100 s: (12.1...12.7) Governer no. Customer-spec. information Spread cm3 : 0.3Customer : KHD 100 s: (0.6) : BF6L913C Engine rpm : 325.0 2nd speed Rack travel in mm : 4.9...5.0 1st version kW : 134.0 Del.quantity cm3/ : 1.0...1.4 : 2300 Rated speed 100 s: (0.7...1.6) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. , C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 rpm : 800 : 1 417 413 047 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 0 681 343 009 1st version Speed rpm : 1150 Aneroid pressure h: 1000 Openina Del.quantity : 123.0...127.0) pressure, bar : 172...175 cm3 : 3.50 1000 : (6.00) Spread Test lines : 1 680 750 014 Outside diameter RATED SPEED x Wall thickness : 6.00x2.00x600 1st version x Length mm Control lever (A) Injection pump setting values position degrees: 52...60 Insp. values in parentheses Set equal delivery quant. Setting point: Speed per values man Rack travel in mm : 0.6 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Testing: 1st rack travel in: 11.80 Speed rpm : 1200...1210 2nd rack travel in: 4.00 : 3.45...3.55

Speed

rpm : 1245...1275

G09

Prestroke mm

: (3.40...3.60) Rack travel in mm : 9.00...12.00

4th rack travel in: 1440 rpm : 0.30...1.70Speed LOW TDLE 1 Control lever position degrees: 18...25 Setting point w/out bumper spring : 325 Speed rpm Rack travel in mm: 4.7 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 325 rpm Rack travel in mm: 4.70...4.80 Rack travel in mm: 2.00 rpm : 455...515 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.80...12.90 rpm : 800 2nd speed Rack travel in m: 13.20...13.30 3rd speed rpm : 900
Rack travel in m: 13.00...13.20
4th speed rpm : 1000 Rack travel in m: 12.80...13.00 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa : 500 Pressure : 11.60...11.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 1000 Rack travel in m: 13.20...13.30 2nd pressure hPa : -Rack travel in m: 10.50...10.60 3rd pressure hPa : 650 Rack travel in m: 12.30...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 800 Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1200...1210 Speed STARTING FUEL DELIVERY Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE Speed rpm : 325 Rack travel in mm : 4.90...5.00 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: :

G10

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 73 Phasing : 0-60-120-180-240-300 Edition : 16.06.89 Tolerance + - ... : 0.50 (0.75)Replaces : ISO-4113 Test oil BASIC SETTING : 0 403 476 067 Combination no. rpm : 1300 1st speed Injection pump Pump designation : PES6MW100/720RS1131 Rack travel in mm : 12.60...12.70 EP type number : 0 413 406 123 Del.quantity cm3/: 10.0...10.2 Governor Governor design. : RSV350...1300MWDA2 Governor no. : 0 420 085 109 100 s: (9.8...10.4) cm3 : 0.3Customer-spec. information Spread : DB-NKW Customer 100 s: (0.6) Engine : OM 366 LA rpm : 350.0 2nd speed Rack travel in mm : 6.2...6.9 Del.quantity cm3/ : 1.0...1.2 1st version kW : 150.0 Rated speed : 2600 100 s: (0.6...1.5) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. ., C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 rpm : 800 Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Click setting \bar{x} : 5.75 Test nozzle holder assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed rpm : 1300 Aneroid pressure h: 700 Del.quantity : 100.0...102.0 1000 : (98.0...104.0) Test Lines : 1 680 750 015 cm3 : 3.50 Outside diameter Spread 1000 : (6.00) x Wall thickness : 6.00X1.50X600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 44...52 BEGINNING OF DELIVERY Setting point: Test pressure, bar: 30...32 Speed rpm : 800 Rack travel in mm : 0.6 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Testing:

1st rack travel in: 11.60

rpm : 1340...1345 Speed 2nd rack travel in: 4.00 : 1387...1400 Speed man 3rd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1600 Speed rpm: 0.30...1.70 5th rack travel in: 1335...1350 rpm : 11.60 Speed LOW TOLE 1 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.5 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 350 Speed rpm Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 : 420...480 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 250 Pressure : 11.30...11.40 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 400 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 600 Speed rpm Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.90 Del.quantity cm3/ : 10.0...12.0 1000 s: (6.5...15.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 500...1999 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 12,7 T7 : 07.02.89 Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 548 030 Injection pump Pump designation : PE8MW100/720LS1117 : 0 413 508 101 EP type number Governor Governor design. : RQ300/1000Mw104 Governer no. : 0 420 082 034 Customer-spec. information Customer Engine : F 8L 513 1st version kW : 150.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 740 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___ BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.10...3.20

Rack travel in mm : 9.00...12.00

: (3.05...3.25)

Prestroke mm

G13

```
: 1-8-7-2-6-5-
4-3
Firing order
                  : 0-45-90-135-180-225-
Phasing
                    270-315
Tolerance + - ... : 0.50 (0.75)
BASIC SETTING
            rpm: 1000
1st speed
Rack travel in mm : 11.30...11.40
Del.quantity cm3/: 9.1...9.3
             100 s: (8.9...9.5)
Spread
             cm3 : 0.3
             100 s: (0.6)
2nd speed rpm : 300.0
Rack travel in mm : 7.9...8.1
Del.guantity cm3/: 0.5...0.9
             100 s: (0.3...1.1)
             cm3 : 0.3
Spread
             100 s: (0.5)
(B) Setting of injection pump
    with governor
GUIDE SLEEVE TRAVEL
1st speed rpm : 1100
                  : 8.90...9.30
  travel mm
                 : 1050
2nd speed
             rpm
                  : 6.90...7.10
 travel mm
                 : 350
: 3.90...4.50
: 300
3rd speed
             rpm
  travel mm
4th speed
             rpm
  travel mm
                  : 2.00...2.40
GUIDE SLEEVE POSITION
Control-lever position
            Degree: -2
            rpm : 550
Speed
Rack travel in mm : 19.20...20.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
             rpm : 1000
Speed
Del.quantity
                  : 91.0...93.0
            1000
                 : (89.0...95.0)
                  : 3.50
```

RATED SPEED

Spread

cm3

1000

: (6.00)

1st version Control lever position degrees: 30...38 Setting point: Speed rpm : 550 Rack travel in mm : 20.0 Testina: 1st rack travel in: 10.30 rpm : 1040...1055 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 -Speed 3rd rack travel in: 4.00 4th rack travel in: 1180 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 8.0 Testina: Speed rpm : 100 Minimum rack trave: 9.50 Speed rpm : 300 Rack travel in mm : 7.90...8.10 Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 11.30...11.40 000: mgr 2nd speed Rack travel in m: 12.80...12.90 3rd speed rpm : 850 Rack travel in m: 12.20...12.50 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 101.5...104.5 1000 s: (99.0...107.0) cm3 : 5.00Spread 1000 s: (7.)

full load rack tr: 10.30 Speed rpm : 1040...1055

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.90...8.10 Del.quantity cm3/: 5.0...9.0 1000 s: (3.0...11.0) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Set warm starting fuel delivery 90...95 cm 3 /1000 strokes at n = 100 min -1 at spool

BREAKAWAY

1st version

1mm rack travel less than

BOSCH INJ. PUMP TEST SPECIFICATIONS	
Note remarks	
Test sheet Edition Replaces	: KHD 13,4D16 : 16.06.89 : - : ISO-4113
Test oil	: ISO-4113
Combination no.	: 0 403 548 034
Injection pump Pump designation EP type number Governor	: PE8MW100/720LS1128 : 0 413 508 103
Governor design. Governer no.	: RQ300/1150MW63-6 : 0 420 082 038
Customer-spec. in Customer	formation : KHD
Engine	: BF 8L 513
1st version kW Rated speed	: 243.0 : 2300
TEST BENCH REQUIREMENTS	
Test oil inlet temp. , C	: 3842
Overflow valve	: 1 417 413 047
Inlet press., bar	: 1.50
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172175
Test lines	: 1 680 740 014
Outside diameter x Wall thickness x Length mm	: 6.00x2.00x600
(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.	

: 0-45-90-135-180-225-Phasing 270-315 Tolerance + - ... : 0.50 (0.75)BASIC SETTING rpm: 1150 1st speed Rack travel in mm : 13.60...13.70 Del.quantity cm3/: 15.1...15.3 100 s: (14.9...15.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 6.6...6.8 Del.quantity cm3/ : 1.3...1.7 100 s: (1.1...1.9) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1280 1st speed : 9.70...10.30 travel mm rpm : 1210 2nd speed : 7.40...7.60 travel mm rpm : 650 3rd speed : 5.20...5.80 rpm : 300 travel mm 4th speed : 0.80...1.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 750 Rack travel in mm : 14.70...16.30 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Aneroid pressure h: 900 Del.quantity : 151.0...155.0)
Spread cm3 : 3.50
(6.00) RATED SPEED

Firing order : 1-8-7-2-6-5-

G15

per values

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.10...3.20 : (3.05...3.25)

BEGINNING OF DELIVERY

Prestroke mm

1st version Control lever position degrees: 40...48 Setting point: Speed Rack travel in mm : 15.5 Testing: 1st rack travel in: 12.60 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1270...1300 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm Rack travel in mm: 6.7 Testing: rpm : 100 Speed Minimum rack trave: 8.20 rpm : 300 Speed Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 rpm : 500...540 Speed CONSTANT REGULATION rpm : 320...400 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 710 Rack travel mm : 13.00...13.10 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.80...11.90 2nd pressure hPa : 530 Rack travel in m: 12.20...12.50 3rd pressure hPa : 900 Rack travel in m: 13.60...13.70 START CUT-OUT 1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

G16

1st version Aneroid pressure h: 900 rpm : 700 Del.quantity cm3/: 147.5...150.5 1000 s: (145.0...153.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 450 Del.quantity cm3/ : 108.0...110.0 1000 s: (106.0...112.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 e : 01.09.88 Edition Phasing : 0-60-120-180-240-300 : 8.1.88 Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 9 400 085 288 BASIC SETTING Injection pump Pump designation : PES6A90D410RS2596-1 EP type number : 9 400 084 008 1st speed rpm: 1300 Governor : RQV300...1300AB1066-Rack travel in mm : 13.10...13.20 Governor design. : 9 420 080 230 Governer no. Del.quantity cm3/: 8.6...8.7 100 s: (8.4...8.9) Customer-spec. information Customer : DAIMLER-BENZ cm3 : 0.3Spread : OM 366 A Engine 100 s: (0.5) 1st version kW : 127.0 rpm : 300.0 Rated speed : 2600 2nd speed Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 1.0...1.4 TEST BENCH REQUIREMENTS 100 s: (0.8...1.6) cm3 : 0.2Test oil Spread 100 s: (0.4) inlet temp. , C : 38...42 Overflow valve (B) Setting of injection pump : 1 417 413 047 with governor GUIDE SLEEVE TRAVEL Inlet press., bar: 1.00 1st speed rpm : 1375 Test nozzle holder : 8.40...8.50 travel mm assembly : 0 681 343 009 rpm : 300 2nd speed travel mm Openina 3rd speed pressure, bar : 172...175 travel mm 4th speed rpm : 800 travel mm rpm : 1100 Test lines : 1 680 750 014 5th speed travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 x Length mm Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1375 Speed Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

: 0.90...1.30 rpm : 500 : 2.20...2.60 : 4.30...4.70 : 6.10...6.40 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 1000 Del.quantity : 86.0...87.0 1000 : (84.0...89.0)

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15)

Prestroke mm

Spread cm3 : 3.00 1000 : (5.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 12.10 rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1470...1500 Speed 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 19...27 Testing: Speed rpm Minimum rack trave: 10.00 Speed rpm: 300
Rack travel in mm: 8.40...8.60
Rack travel in mm: 2.00 rpm : 570...630 Speed CONSTANT REGULATION rpm : 590...660 Speed TORQUE CONTROL Dimension a mm : 1.00 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 13.10...13.20 rpm : 800 2nd speed Rack travel in m: 14.10...14.20 3rd speed rpm : 1000 Rack travel in m: 13.90...14.10 4th speed rpm : 1150 Rack travel in m: 13.30...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure : 14.10...14.20 Rack travel mm

Measurement 1/min: 500 Speed

1st pressure hPa : -Rack travel in m: 12.80...12.90 2nd pressure hPa : 750

Rack travel in m: 13.90...14.00 3rd pressure hPa : 650

Rack travel in m: 13.20...13.40

START CUT-OUT

1/min : 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000

Speed rpm : 800 Del.quantity cm3/: 89.0...91.0 1000 s: (86.5...93.5) Aneroid pressure h: 1000

Speed rpm : 1000 Del.quantity cm3/: 90.0...92.0 1000 s: (87.5...94.5)

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 66.5...68.5 1000 s: (64.5...70.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 71.0...81.0 1000 s: (68.0...84.0)

Rack travel in mm : 14.70...15.70

:

Remarks:

G18

Firing order : 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : VOL 10,0q11 : 02.05.89 Phasing : 0-60-120-180-240-300 Test sheet Edition Replaces : 1.9.88 : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 9 400 087 295 BASIC SETTING Injection pump Pump designation : PE6P110A320RS3108Y 1st speed rpm: 700 EP type number : 0 411 816 729 Rack travel in mm : 11.10...11.20 Governor Governor design. : RQV250...1100PA589-1 Governer no. : 9 420 080 166 Del.quantity cm3/: 13.8...14.0 100 s: (13.5...14.3) Customer-spec. information : VOLVO Customer Spread cm3 : 0.4Engine : THD 100 FC 100 s: (0.7) 1st version kW : 180.0 : 2200 Rated speed 2nd speed rpm : 250.0Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 3.0...3.4 100 s: (2.7...3.6) TEST BENCH REQUIREMENTS cm3 : 0.3Test oil Spread inlet temp. , C : 38...42 100 s: (0.6) Overflow valve (B) Setting of injection pump : 1 417 413 025 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 travel mm : 1.20...1.30
2nd speed rpm : 370
travel mm : 2.60...3.00 Test nozzle holder assembly : 0 681 343 009 3rd speed rpm : 430 Opening | pressure, bar : 172...175 : 3.50...3.90 travel mm 4th speed rpm : 1160 : 8.10...8.30 travel mm rpm : 1210 : 9.40...9.60 Test Lines : 1 680 750 015 5th speed travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x1.50x600 Control-lever position x Lenath mm Degree: -1 rpm : 1180 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Rack travel in mm : 15.20...17.80 per values BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 700

: 4.00 cm3 Spread 1000 : (7.50)RATED SPEED 1st version

Control Lever position degrees: 61...69

Testina:

1st rack travel in: 10.10 rpm : 1160...1170 Speed

2nd rack travel in: 4.00

Speed rpm : 1225...1255 4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever position degrees: 8...16

Testing:

Speed rpm Minimum rack trave: 6.70 : 250 rpm

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

rpm : 250...425 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 900 Pressure

: 11.10...11.20 Rack travel mm

Measurement

Speed 1/min: 500
Rack travel in m: 9.60...9.80
2nd pressure hPa : 275

Rack travel in m: 9.90...10.00

3rd pressure hPa : 400 Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -: 700 rpm

Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1160...1170 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 170.0...200.0 1000 s: (166.0...204.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 30.0...34.0

1000 s: (27.5...36.5)

cm3 : 3.00Spread

1000 s: (6.00)

Remarks:

Delivery-value spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

APPLICATION

Omnibus

Firing order : 1-2-4-5-3 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 e 2 Phasing : 0-72-144-216-288 Test sheet Edition : 02.05.89 Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) : 11.8.87 Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 9 400 087 308 BASIC SETTING Injection pump Pump designation : PE5P110A720RS479 rpm : 10501st speed EP type number : 9 400 087 040 Rack travel in mm : 12.20...12.30 Governor Governor design. : RQ300/1050PA718-1 Governer no. : 9 420 080 187 Del.quantity cm3/: 16.1...16.3 100 s: (15.8...16.6) Customer-spec. information Customer : DAIMLER-BENZ BRASIL Spread cm3 : 0.4: OM355-5 A Engine 100 s: (0.7) 1st version kW : 170.0 Rated speed : 2100 2nd speed rpm : 300.0 Rack travel in mm : 6.4...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.1...1.6 100 s: (-) cm3 : 0.4 100 s: (0.7) Test oil Spread inlet temp. _ C : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 417 413 000 Control-lever position Degree: -3 Speed rpm: 600 Rack travel in mm: 19.20...20.80 Inlet press., bar: 1.50 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP assembly : 0 681 343 009 Openina 1st version rpm : 1050 pressure, bar : 172...175 Speed Aneroid pressure h: 700 : 161.0...163.0 Del.quantity 1000 : (158.0...166.0) cm3 : 4.00 1000 : (7.50) Test lines : 1 680 750 004 Spread Outside diameter x Wall thickness : 6.00x1.50x600 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: Speed rpm : 600 Rack travel in mm : 20.0 per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 11.20 : 3.35...3.45 Speed rpm : 1095...1110 Prestroke mm 2nd rack travel in: 4.00 : (3.30...3.50)

ுள் : 1150...1180

Speed

Rack travel in mm : 9.00...12.00

4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm : 6.5 Testing: Speed : 100 rpm Minimum rack trave: 8.50 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed rpm : 375...415 TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 12.20...12.30 2nd speed rpm : 600 Rack travel in m: 13.10...13.20 3rd speed rpm : 900 Rack travel in m: 12.70...13.00 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 13.10...13.20 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.30...10.40 2nd pressure hPa : 400 Rack travel in m: 12.40...12.50

3rd pressure hPa : 250

Rack travel in m: 11.10...11.30 START CUT-OUT 1/min: 230 (270) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 600 mgn Del.quantity cm3/: 177.0...181.0 1000 s: (174.0...184.0) Aneroid pressure h: 700

: 900

rpm

Del.quantity cm3/: 174.0...178.0 1000 s: (171.0...181.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 112.5...115.5 1000 s: (110.0...118.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0

1000 s: (-) Rack travel in mm : 13.30...14.30

Remarks:

G22

Speed

: 4.25...4.35 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm (4.20...4.30) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : FOR 7,8 c : 02.05.89 Edition Contaces : 12.11.87 : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance $+ - \dots : 0.50 (0.75)$ Combination no. : 9 400 087 376 Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3193 EP type number : 9 400 087 057 BASIC SETTING Governor Governor design. : RSV650...1250P8A528 rpm : 1200 1st speed : 9 420 082 323 Governer no. Rack travel in mm : 13.20...13.30 Customer-spec. information Customer : FORD FNH Del.quantity cm3/: 13.2...13.4 100 s: (13.0...13.6) Engine : 7.8 L 1st version kW : 140.0 Spread cm3 : 0.5Rated speed : 2500 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 650.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.8...1.2 Test oil inlet temp. , C : 38...42 100 s: (0.5...1.5) cm3 : 0.3 Overflow valve Spread 100 s: (0.5) : 9 401 087 214 Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 rpm : 800 : 1 688 901 017 assembly Speed Rack travel in mm : 0.30...1.00 **Opening** : 207...210 pressure, bar Governor spring pre-tension Click setting x : 3.25 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version rpm : 1200 Test lines : 1 680 750 015 Speed Del.quantity : 132.0...136.0) Outside diameter : 5.00 x Wall thickness cm3 Spread 1000 : (9.00) : 6.00x1.50x600 x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control Lever position degrees: 49...57 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 12.20

rpm : 1260...1270 Speed 2nd rack travel in: 4.00 : 1300...1320 Speed rpm 4th rack travel in: 1400 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 650 Rack travel in mm: 6.0 Testing: Speed : 600 rpm Minimum rack trave: 10.00 : 650 Speed rpm Rack travel in mm: 5.40...5.60 Rack travel in mm: 2.00 Speed rom : 685...745 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 110.0...114.0 1000 s: (108.0...116.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1260...1270 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (131.0...159.0) Rack travel in mm : 20.00...21.00 LOW IDLE rpm : 650 Speed Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...15.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: APPLICATION

Combine-harvester

G24

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: FOR 7,8 c 1 : 02.05.89 Test sheet Edition Replaces

: 1.9.88 Test oil : ISO-4113

Combination no. : 9 400 087 377

Injection pump

Pump designation : PES6P110A720RS3193

EP type number : 9 400 087 057

Governor

: RSV650...1250P8A530-Governor design.

Governer no. : 9 420 082 324

Customer-spec. information

Customer : FORD - FNH

Engine : 7.8 \

: 165.0 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.25...4.35 : (4.20...4.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \dots : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ., CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.60

Del.guantity cm3/: 13.7...13.9

100 s: (13.5...14.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 650.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 1000

Del.quantity : 157.0...141.0)

: 5.00 Spread

1000 : (9.00)

G25

RATED SPEED 1st version Control lever position degrees: 48...56 Testina: 1st rack travel in: 12.50 Speed rpm: 1260...1270 2nd rack travel in: 4.00 Speed rpm : 1300...1320 4th rack travel in: 1400 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 650 Rack travel in mm: 6.0 Testing: Speed rpm : 600 Minimum rack trave: 10.00 Speed rpm : 650
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00 Speed rpm : 685...745 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1200 rpm Pressure hPa : 1000 Rack travel mm : 13.50...13.60 Measurement $1/\min : 1200$ beed 1st pressure hPa : -Rack travel in m: 9.90...10.00 2nd pressure hPa : 600 Rack travel in m: 12.50...12.60 3rd pressure hPa : 400

Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/: 117.5...119.5 1000 s: (115.5...121.5) Aneroid pressure h: -

: 1200

rpm

Del.quantity cm3/: 79.0...81.0 1000 s: (77.0...83.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.50 rpm : 1260...1270 Speed STARTING FUEL DELIVERY rpm : 100 Speed rpm . 100
Del.quantity cm3/: 135.0...155.0
1000 s: (131.0...159.0) Speed Rack travel in mm : 20.00...21.00 LOW IDLE rpm : 650 Speed Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50 1000 s: (5.50)

Remarks: **APPLICATION**

Combine-harvester

Speed

: 4.25...4.35 : (4.20...4.40) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Firing order : FOR 7,8 c 2 Test sheet : 02.05.89 Edition : 1.9.88 Replaces : ISO-4113 Test oil Phasing : 9 400 087 378 Combination no. Injection pump Pump designation : PES6P110A720RS3193 EP type number : 9 400 087 057 Governor Governor design. : RSV650...1250P8A530 : 9 420 082 325 Governer no. Customer-spec. information Customer : FORD -FNH BASIC SETTING : 7.8 l Engine 1st speed 1st version kW : 180.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp., C : 38...42 Spread Overflow valve : 1 417 413 025 2nd speed Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Spread Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Speed Insp. values in parentheses Del.quantity Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 : 0-60-120-180-240-300 Tolerance + -., .: 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference . CS : 2.00...3.00 rpm: 1200 Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 15.5...15.7 100 s: (15.3...15.9) cm3 : 0.5100 s: (0.9) rpm : 650.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 3.00FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1200 Aneroid pressure h: 1000 : 155.0...157.0 1000 : (153.0...159.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

1st version Control lever position degrees: 48...56 Testing:

1st rack travel in: 13.60 Speed rpm : 1260...1270 2nd rack travel in: 4.00

rpm : 1305...1325

Speed 4th rack travel in: 1400

Speed rpm : 0.30...1.70LOW IDLE 1

Control lever position degrees: 22...30

Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 6.0

Testing:

: 600 Speed rpm Minimum rack trave: 10.00 : 650 Speed rpm

Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00

: 685...745 Speed rpm

Aneroid/Altitude Compensator Test

1st version Setting

: 1200 Speed rpm hPa : 1000 Pressure

: 14.60...14.70 Rack travel mm

Measurement

1/min: 1200 Speed

1st pressure hPa : -

Rack travel in m: 11.50...11.60

2nd pressure hPa : 600

Rack travel in m: 14.00...14.10 3rd pressure hPa : 400

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 800 Speed rpm

Del.quantity cm3/: 131.0...135.0 1000 s: (129.0...137.0)

Aneroid pressure h: -

: 1200 Speed man

Del.quantity cm3/: 107.0...109.0 1000 s: (105.0...111.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (131.0...159.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed : 650 rpm

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

APPLICATION

Combine-harvester

: 4.25...4.35 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.20...4.40) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : FOR 7,8 d : 02.05.89 Test sheet Edition : 1.9.88 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 087 379 Tolerance $+ - \dots : 0.50 (0.75)$ Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3150 EP type number : 9 400 087 046 BEGINNING OF DELIVERY DIFFERENCE Governor Governor design. : RQV350...1200PA863 betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Governer no. : 9 420 080 242 Difference ., CS : 2.00...3.00 Customer-spec. information Customer : FORD (FNH) BASIC SETTING : 7.8 L TC Engine 1st speed rpm : 1200 1st version kW : 138.0 Rated speed : 2400 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 12.7...12.9 TEST BENCH REQUIREMENTS 100 s: (12.5...13.1) Test oil inlet temp. , C : 38...42 cm3 : 0.5Spread Overflow valve 100 s: (0.9) : 1 417 413 025 rpm : 350.02nd speed Rack travel in mm: 8.0...8.2 Inlet press., bar: 1.50 Del.quantity cm3/: 2.3...2.7 100 s: (2.0...2.9) Test nozzle holder cm3 : 0.3assembly : 1 688 901 017 Spread 100 s: (0.5) Opening | : 207...210 (B) Setting of injection pump pressure, bar with governor Orifice plate diameter mm : 0,6 GUIDE SLEEVE TRAVEL rpm : 1360 1st speed : 8.40...8.50 travel mm rpm : 1000 Test lines : 1 680 750 015 2nd speed : 5.50...5.90 travel mm rpm : 800 3rd speed Outside diameter : 4.40...4.80 travel mm rpm : 500 : 6.00x1.50x600 4th speed : 2.60...3.00 travel mm : 300 5th speed rpm : 0.90...1.30

x Wall thickness x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 GUIDE SLEEVE POSITION Control-lever position Degree: -1

travel mm

rpm : 1440 Speed Rack travel in mm : < 8.00

Measurement $1/\min : 500$ FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st version 1st pressure hPa : -Rack travel in m: 12.20...12.30 2nd pressure hPa : 267 Rack travel in m: 12.60...12.70 3rd pressure hPa : 335 Rack travel in m: 13.30...13.50 Speed rpm : 1200 Aneroid pressure h: 600 Del.quantity : 127.5...129.5 1000 : (125.5...131.5) Spread cm3 : 5.00 1000 : (9.00) START CUT-OUT RATED SPEED 1/min : 290 (310) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 42...50 Testing: 1st version 1st rack travel in: 12.00 Aneroid pressure h: 600 rpm : 1260...1270 : 750 rpm Del.quantity cm3/: 115.0...119.0 1000 s: (113.0...121.0) 2nd rack travel in: 4.00 Speed rpm : 1385...1415 4th rack travel in: 1500 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.5...76.5 1000 s: (72.5...78.5) Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 13...21 BREAKAWAY Testing: Speed rpm : 100 1st version Minimum rack trave: 12.00 Speed rpm : 350 1mm rack travel less than Rack travel in mm : 8.00...8.20 full load rack tr: 12.00 rpm : 1260...1270 Speed CONSTANT REGULATION rpm : 390...460 Speed STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 13.00...13.10 ad speed rpm : 750 2nd speed Rack travel in m: 13.80...13.90 LOW IDLE 3rd speed rpm : 900 Rack travel in m: 13.70...13.90 rpm : 350 4th speed rpm : 1100 Rack travel in mm : 8.00...8.20 Del.quantity cm3/: 23.0...27.0 1000 s: (20.5...29.5) Spread cm3 : 3.50 1000 s: (5.50) Rack travel in m: 13.00...13.10 Aneroid/Altitude Compensator Test Remarks: 1st version Setting Set shutoff stop 1.5...2.0 mm before Speed : 500 rpm hPa : 600 shutoff. Pressure Rack travel mm : 13.80...13.90

H02

: 4.25...4.35 : (4.20...4.40) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : FOR 7,8 e : 02.05.89 Edition : 1.9.88 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 9 400 087 380 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3151 : 9 400 087 047 BEGINNING OF DELIVERY DIFFERENCE EP type number Governor Governor design. : RQV350...1200PA863-1 Governer no. : 9 420 080 243 betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference .. CS : 2.00...3.00 Customer-spec. information : FORD (FNH) BASIC SETTING Customer Engine : 7.8 L TC 1st speed rpm: 1200 : 157.0 : 2400 Rack travel in mm : 13.30...13.40 1st version kW Rated speed Del.quantity cm3/: 13.2...13.4 TEST BENCH REQUIREMENTS 100 s: (13.0...13.6) Test oil inlet temp. , C : 38...42 Spread cm3 : 0.5Overflow valve 100 s: (0.9) : 1 417 413 025 2nd speed rpm : 350.0 Rack travel in mm: 8.0...8.2 Inlet press., bar: 1.50 Del.quantity cm3/ : 2.6...3.0 100 s: (2.3...3.2) Test nozzle holder : 1 688 901 017 cm3 : 0.3assembly Spread 100 s: (0.5) Openina : 207...210 pressure, bar (B) Setting of injection pump with governor Orifice plate : 0.6 GUIDE SLEEVE TRAVEL diameter mm rpm : 1360 1st speed : 8.40...8.50 travel mm Test lines : 1 680 750 015 2nd speed : 1000 rpm : 5.50...5.90 travel mm 3rd speed : 800 Outside diameter rpm : 4.40...4.80 x Wall thickness travel mm : 6.00x1.50x600 : 500 x Length mm 4th speed rpm : 2.60...3.00 travel mm : 300 (A) Injection pump setting values 5th speed rpm Insp. values in parentheses Set equal delivery quant. : 0.90...1.30 travel mm per values GUIDE SLEEVE POSITION Control-lever position Degree: -1 BEGINNING OF DELIVERY Speed rbm : 1440 Test pressure, bar: 25...27

Rack travel in mm : < 8.00

Measurement 1/min : 500 FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st version 1st pressure hPa : -Rack travel in m: 11.90...12.00 rpm : 1200 Speed 2nd pressure hPa : 420 Aneroid pressure h: 600 Rack travel in m: 12.50...12.60 3rd pressure hPa : 505 Rack travel in m: 13.40...13.60 Del.quantity : 132.0...134.0 1000 : (130.0...136.0) cm3 : 5.00 1000 : (9.00) Spread START CUT-OUT RATED SPEED Speed 1/min: 290 (310) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 43...51 1st version Testina: 1st rack travel in: 12.30 Aneroid pressure h: 600 rpm : 1260...1270 Speed rpm : 750 Del.quantity cm3/: 116.0...120.0 Speed 2nd rack travel in: 4.00 rpm : 1390...1420 1000 s: (114.0...122.0) Speed 4th rack travel in: 1520 Aneroid pressure h: rpm : 500 Speed rpm : 0.00...1.00 Speed Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0) LOW IDLE 1 Control lever position degrees: 13...21 BREAKAWAY Testing: Speed rpm : 100 1st version Minimum rack trave: 12.00 1mm rack travel less than Speed rpm : 350 Rack travel in mm : 8.00...8.20 full load rack tr: 12.30 rpm : 1260...1270 Speed CONSTANT REGULATION rpm : 390...460 Speed STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm : 0.70 Speed rpm : 100 Del.quantity cm3/: 150.0...170.0 1000 s: (-) Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 13.30...13.40
2nd speed rpm : 750
Rack travel in m: 14.00...14.10
3rd speed rpm : 900 Rack travel in mm : 20.00...21.00 LOW IDLE Rack travel in m: 13.90...14.10 rpm : 350 Speed 4th speed rpm : 1120 Rack travel in mm : 8.00...8.20 Rack travel in m: 13.30...13.40 Del.quantity cm3/: 26.0...30.0 1000 s: (23.5...32.5) cm3 : 3.50 Aneroid/Altitude Spread 1000 s: (5.50) Compensator Test Remarks: 1st version Setting rpm : 500 Set shutoff stop 1.5...2.0 mm before Speed hPa : 600 Pressure shutoff. Rack travel mm : 14.00...14.10

: 4.25...4.35 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.20...4.40) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : FOR 7,8 d 1 Test sheet : 02.05.89 Edition : 1.9.88 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing : 9 400 087 381 Tolerance + - ... : 0.50 (0.75)Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3150 : 9 400 087 046 BEGINNING OF DELIVERY DIFFERENCE EP type number Governor betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Governor design. : RQV350...1200PA863-3 : 9 420 080 244 Governer no. Difference .. CS : 2.00...3.00 Customer-spec. information Customer : FORD (FNH) BASIC SETTING : 7.8 L TC Engine 1st speed rpm: 1200 : 160.0 Rack travel in mm : 12.90...13.00 1st version kW : 2400 Rated speed Del.guantity cm3/: 12.5...12.7 TEST BENCH REQUIREMENTS 100 s: (12.3...12.9) Test oil cm3 : 0.5inlet temp. , C : 38...42 Spread 100 s: (0.9) Overflow valve : 1 417 413 025 2nd speed rpm : 350.0 Rack travel in mm : 8.0...8.2 Inlet press., bar: 1.50 Del.guantity cm3/: 2.3...2.7 100 s: (2.1...2.9) Test nozzle holder : 1 688 901 017 cm3 : 0.3assembly Spread 100 s: (0.5) Opening pressure, bar : 207...210 (B) Setting of injection pump with governor Orifice plate diameter mm : 0,6 GUIDE SLEEVE TRAVEL 1st speed rpm : 1360 : 8.40...8.50 travel mm Test lines : 1 680 750 015 2nd speed rpm : 1000 : 5.50...5.90 travel mm rpm : 800 3rd speed Outside diameter : 4.40...4.80 x Wall thickness travel mm rpm : 500 : 2.60...3.00 : 6.00X1.50X600 x Length mm 4th speed travel mm rpm : 300 (A) Injection pump setting values 5th speed : 0.90...1.30 Insp. values in parentheses travel mm Set equal delivery quant. GUIDE SLEEVE POSITION per values Control-lever position

Degree: -1

Rack travel in mm : < 8.00

Speed

rpm : 1440

BEGINNING OF DELIVERY Test pressure, bar; 25...27

Measurement $1/\min : 500$ FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st version 1st pressure hPa : -Rack travel in m: 12.90...13.00 2nd pressure hPa : 333 Rack travel in m: 13.20...13.30 rpm : 1200 Speed Aneroid pressure h: 600 Del.quantity : 125.5...127.5 1000 : (123.5...129.5) 3rd pressure hPa : 380 Rack travel in m: 13.70...13.90 cm3 : 5.00 Spread 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min : 290 (310) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 42...50 Testina: 1st version 1st rack travel in: 11.90 Aneroid pressure h: 600 Speed rpm: 750
Del.quantity cm3/: 117.0...121.0
1000 s: (115.0...123.0) Speed rpm : 1260...1270 2nd rack travel in: 4.00 Speed rpm : 1380...1410 4th rack travel in: 1500 Aneroid pressure h: rpm_ : 500 Speed rpm : 0.00...1.00Speed Del.quantity cm3/: 84.0...86.0 1000 s: (82.0...88.0) LOW IDLE 1 Control lever position degrees: 13...21 **BREAKAWAY** Testing: Speed rpm : 100 Minimum rack trave: 12.00 1st version 1mm rack travel less than rpm : 350 Rack travel in mm : 8.00...8.20 full load rack tr: 11.90 rpm : 1260...1270 Speed CONSTANT REGULATION rpm : 390...460 STARTING FUEL DELIVERY Speed TORQUE CONTROL Dimension a mm : 1.10 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 12.90...13.00 nd speed rpm : 750 Rack travel in m: 14.00...14.10 2nd speed LOW IDLE 3rd speed rpm : 870 Rack travel in m: 13.90...14.10 4th speed rpm : 1100 Rack travel in m: 12.90...13.00 rpm : 350 Speed Rack travel in mm : 8.00...8.20 Del.quantity cm3/ : 23.0...27.0 1000 s: (21.0...29.0) cm3 : 3.50Aneroid/Altitude Spread 1000 s: (5.50) Compensator Test Remarks: 1st version Setting Set shutoff stop 1.5...2.0 mm before Speed : 500 rpm hPa : 600 shutoff. Pressure Rack travel mm : 14.00...14.10

: 4.25...4.35 : (4.20...4.40) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-5-2-4 Firing order : FOR 7,8 e 1 Test sheet Edition : 02.05.89 : 1.9.88 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 9 400 087 382 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3151 : 9 400 087 047 BEGINNING OF DELIVERY DIFFERENCE EP type number Governor Governor design. : RQV350...1200PA863-2 betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Governer no. : 9 420 080 245 Difference .. CS : 2.00...3.00 Customer-spec. information Customer : FORD (FNH) BASIC SETTING Engine : 7.8 L TC 1st speed rpm: 1200 1st version kW : 160.0 Rack travel in mm : 13.70...13.80 : 2400 Rated speed Del.guantity cm3/: 13.6...13.8 TEST BENCH REQUIREMENTS 100 s: (13.4...14.0) Test oil inlet temp. . C : 38...42 Spread cm3 : 0.5Overflow valve 100 s: (0.9) : 1 417 413 025 rpm : 350.02nd speed Rack travel in mm: 8.0...8.2 Inlet press., bar: 1.50 Del.quantity cm3/ : 2.4...2.8 100 s: (2.1...3.0) cm3 : 0.3 Test nozzle holder assembly : 1 688 901 017 Spread 100 s: (0.5) Opening pressure, bar : 207...210 (B) Setting of injection pump with governor Orifice plate diameter mm : 0,6 GUIDE SLEEVE TRAVEL 1st speed rpm : 1360 travel mm : 8.40...8.50 : 1000 : 5.50...5.90 : 1 680 750 015 Test lines 2nd speed rpm travel mm rpm : 800 Outside diameter 3rd speed : 4.40...4.80 x Wall thickness travel mm rpm : 500 : 6.00x1.50x600 x Length mm 4th speed : 2.60...3.00 travel mm rpm : 300 (A) Injection pump setting values 5th speed Insp. values in parentheses : 0.90...1.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Rack travel in mm : < 8.00

Speed

Degree: -1 rpm : 1440

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

H07

Measurement 1/min: 500 FULL LOAD DELIV. AT FULL LOAD STOP Speed 1st version 1st pressure hPa : -Rack travel in m: 12.40...12.50 2nd pressure hPa : 345 Rack travel in m: 12.90...13.00 rpm : 1200 Speed Aneroid pressure h: 600 Del.quantity : 136.u...140.0) 3rd pressure hPa : 420 Rack travel in m: 13.60...13.80 : 5.00 cm3 Spread 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 290 (310) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 43...51 Testing: 1st version 1st rack travel in: 12.70 Aneroid pressure h: 600 rpm : 1260...1270 : 750 Speed Speed rpm Del.quantity cm3/: 119.0...123.0 1000 s: (117.0...125.0) 2nd rack travel in: 4.00 rpm : 1400...1430 Speed 4th rack travel in: 1530 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 76.5...78.5 1000 s: (74.5...80.5) Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 13...21 BREAKAWAY Testing: Speed rpm : 100 1st version Minimum rack trave: 12.00 1mm rack travel less than rpm : 350 Rack travel in mm : 8.00...8.20 full load rack tr: 12.70 rpm : 1260...1270 Speed CONSTANT REGULATION rpm : 390...460 STARTING FUEL DELIVERY Speed TORQUE CONTROL Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (-) Dimension a mm : 0.60Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 13.70...13.80 Rack travel in mm : 19.00...21.00 rpm : 750 2nd speed Rack travel in m: 14.30...14.40 LOW IDLE 3rd speed rpm : 910 Rack travel in m: 14.20...14.40 4th speed rpm : 1040 Rack travel in m: 13.70...13.80 rpm : 350 Speed Rack travel in mm : 8.00...8.20 Del.quantity cm3/ : 24.0...28.0 1000 s: (21.5...30.5) Aneroid/Altitude Spread cm3 : 3.501000 s: (5.50) Compensator Test Remarks: 1st version Setting Set shutoff stop 1.5...2.0 mm before Speed rpm : 500 hPa : 600 shutoff. Pressure Rack travel mm : 14.30...14.40

80H

: 4.25...4.35 : (4.20...4.40) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order Test sheet : FOR 7,8 e 2 Edition : 02.05.89 : 1.9.88 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Combination no. : 9 400 087 383 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS3151 : 9 400 087 047 EP type number BEGINNING OF DELIVERY DIFFERENCE Governor Governor design. : RQV350...1200PA863-4 betw. rack trav. m: 9.00...12.00 Governer no. : 9 420 080 246 & maximum rack tra: 21.00 Difference , CS : 2.00...3.00 Customer-spec. information : FORD (FNH) BASIC SETTING Customer : 7.8 L TC rpm: 1200 Engine 1st speed : 179.0 Rack travel in mm : 14.50...14.60 1st version kW : 2400 Rated speed Del.quantity cm3/ : 14.9...15.1 TEST BENCH REQUIREMENTS 100 s: (14.7...15.3) Test oil inlet temp. ., C : 38...42 Spread cm3 : 0.5Overflow valve 100 s: (0.9) : 1 417 413 025 rpm : 350.0 2nd speed Rack travel in mm : 8.0...8.2 Inlet press., bar: 1.50 Del.quantity cm3/: 2.4...2.8 Test nozzle holder 100 s: (2.1...3.0) cm3 : 0.3: 1 688 901 017 assembly Spread 100 s: (0.5) Openina : 207...210 pressure, bar (B) Setting of injection pump with governor Orifice plate : 0.6 GUIDE SLEEVE TRAVEL diameter mm rpm : 1360 1st speed : 8.40...8.50 travel mm rpm : 1000 Test lines : 1 680 750 015 2nd speed : 5.50...5.90 travel mm Outside diameter rpm : 800 3rd speed x Wall thickness : 4.40...4.80 travel mm rpm : 500 : 2.60...3.00 rpm : 300 : 6.00x1.50x600 x Length mm 4th speed travel mm (A) Injection pump setting values 5th speed Insp. values in parentheses : 0.90...1.30 travel mm Set equal delivery quant. per values GUIDE SLEEVE POSITION Control-lever position BEGINNING OF DELIVERY Degree: -1

rpm : 1440

Rack travel in mm : < 8.00

Speed

Test pressure, bar: 25...27

FULL LOAD DELIV. AT FULL LOAD STOP $1/\min : 500$ Speed 1st version 1st pressure hPa : -Rack travel in m: 12.10...12.20 Speed rpm : 1200 Aneroid pressure h: 700 2nd pressure hPa : 430 : 149.5...151.5 Del.quantity Rack travel in m: 13.30...13.40 1000 : (147.5...153.5) 3rd pressure hPa : 532 : 5.00 Rack travel in m: 14.30...14.50 Spread cm3 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 290 (310) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 44...52 Testing: 1st version 1st rack travel in: 13.50 Aneroid pressure h: 700 rpm : 1260...1270 Speed Speed rpm Del.quantity cm3/: 128.0...132.0 1000 s: (126.0...134.0) 2nd rack travel in: 4.00 Speed rpm : 1410...1440 4th rack travel in: 1520 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 72.0...74.0 1000 s: (70.0...76.0) Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 13...21 BREAKAWAY Testina: Speed rpm : 100 Minimum rack trave: 12.00 1st version 1mm rack travel less than rpm : 350 full load rack tr: 13.50 Rack travel in mm : 8.00...8.20 rpm : 1260...1270 Speed CONSTANT REGULATION rpm : 390...460 STARTING FUEL DELIVERY Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.50...14.60 rpm : 750 2nd speed Rack travel in m: 15.00...15.10 LOW IDLE 3rd speed rpm : 910 Rack travel in m: 14.90...15.10 4th speed rpm : 1040 Rack travel in m: 14.50...14.60 rpm : 350 Speed Rack travel in mm : 8.00...8.20 Del.quantity cm3/ : 24.0...28.0 1000 s: (21.5...30.5) cm3 : 3.50 Aneroid/Altitude Spread 1000 s: (5.50) Compensator Test Remarks: 1st version Setting : 500 Set shutoff stop 1.5...2.0 mm before Speed man hPa : 700 Pressure shutoff. Rack travel mm : 15.00...15.10

Measurement

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.95...4.05 : (3.90...4.10) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Test sheet : CAT 10,5 g4 Edition : 02.05.89 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - ... : 0.50 (0.75): 9 400 087 384 Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PES6P100A720LS502 EP type number : 9 400 087 050 BASIC SETTING Governor Governor design. : RQV350...1000PA828-2 Governer no. : 9 420 080 247 rpm: 1000 1st speed Rack travel in mm : 10.60...10.70 Customer-spec. information Del.quantity cm3/: 12.2...12.4 Customer : CATERPILLAR : 3306 DIT. 100 s: (12.0...12.6) Engine : 140.0 Spread cm3 : 0.31st version kW : 2000 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Test oil Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.3...1.7 inlet temp. , C : 38...42 100 s: (1.0...1.9) cm3 : 0.3Overflow valve Spread : 9 401 087 348 100 s: (0.5) Inlet press., bar: 2.00 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 assembly GUIDE SLEEVE TRAVEL rpm : 1055 1st speed : 8.50...8.60 Opening travel mm rpm : 300 pressure, bar : 207...210 2nd speed : 1.10...1.40 rpm : 500 : 3.40...3.70 rpm : 700 travel mm 3rd speed Orifice plate diameter mm : 0,6 travel mm 4th speed : 5.20...5.50 travel mm Test lines : 1 680 750 008 rpm : 900 5th speed : 6.80...7.00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00X2.00X600 Control-lever position Degree: -1 rpm : 1055 (A) Injection pump setting values Speed Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

> 1st version Speed

Aneroid pressure h: 500

rpm : 1000

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Del.quantity : 122.0...126.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 64...72 Testing: 1st rack travel in: 9.70 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1120...1150 Speed 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...81 Testing: Speed : 100 rpm Minimum rack trave: 8.50 : 350 Speed rpm Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 : 500...560 Speed man CONSTANT REGULATION rpm : 370...440 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : 500 Pressure : 10.60...10.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.00...9.20 2nd pressure hPa : 145 Rack travel in m: 10.30...10.40 3rd pressure hPa : 75 Rack travel in m: 9.50...9.70

1/min: 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 500 Speed rpm : 700 Del.quantity cm3/ : 122.0...126.0 1000 s: (120.0...128.0) Aneroid pressure h: Speed rpm : 1000 Del.quantity cm3/ : 94.0...96.0 1000 s: (92.0...98.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed Rack travel in mm : 4.90...5.10

Remarks:

H12

Speed

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 t Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 087 391 Injection pump Pump designation : PE6P11DA72DRS518 EP type number : 9 400 087 064 Governor Governor design. : RQ300/1000PA718-1 : 9 420 080 255 Governer no. Customer-spec. information : DAIMLER-BENZ Customer : OM 355 LA Engine : 250.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. ., C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 004 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

```
Test pressure, bar: 25...27
                     : 3.35...3.45
Prestroke mm
: (3.30...3.50)
Rack travel in mm : 9.00...12.00
H13
```

```
Firing order : 1-5-3-6-2-4
                    : 0-60-120-180-240-300
Phasing
Tolerance + - ... : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed
                rpm: 1000
Rack travel in mm : 13.10...13.20
Del.quantity cm3/: 20.3...20.5
               100 s: (20.1...20.8)
              cm3 : 0.4
Spread
               100 s: (0.7)
              rpm : 300.0
2nd speed
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 1.1...1.7
100 s: (0.9...1.8)
              cm3 : 0.4
100 s: (0.7)
Spread
GUIDE SLEEVE POSITION
Control-lever position
             Degree: -2
              rpm : 600
Speed
Rack travel in mm : 19.20...20.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed rpm: 1000
Aneroid pressure h: 1000
Del.quantity: 203.5...205.5
             1000 : (201.0...208.0)
cm3 : 4.00
Spread
             1000 : (7.50)
RATED SPEED
1st version
Setting point:
                   : 600
Speed
             rpm
Rack travel in mm : 20.0
Testing:
1st rack travel in: 12.10
Speed rpm: 1045...1060
2nd rack travel in: 4.00
            rpm : 1110...1140
  Speed
```

4th rack travel in: 1220 rpm : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm Rack travel in mm: 5.5 Testing: Speed : 100 rpm Minimum rack trave: 7.50 : 300 rpm Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 : 380...420 Speed man Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 1000 Speed rpm Pressure : 13.10...13.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.40 2nd pressure hPa : 610 Rack travel in m: 12.10...12.20 3rd pressure hPa : 290 Rack travel in m: 10.10...10.30 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 600 Speed Del.quantity cm3/: 199.5...203.5 1000 s: (196.5...206.5) cm3 : 6.00Spread 1000 s: (9.00) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 118.0...120.0 1000 s: (115.0...123.0) Spread cm3 : 6.00

1000 s: (9.00)

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (116.0...244.0)

Rack travel in mm : 15.50...16.50

Remarks:

:

BREAKAWAY

Prestroke mm : 5.00...5.10 : (4.95...5.15)
Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Firing order : 1-5-3-6-2-4 Test sheet : SCA 11,1 b1 Edition : 02.05.89 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - ., .: 0.50 (0.75) Combination no. : 9 400 087 393 Injection pump Time to cyl. no. : 1 Pump designation : PE6P12OA72ORS7126 : 0 412 626 815 EP type number BASIC SETTING Governor Governor design. : RQV200...1000PA725-1 1st speed rpm: 700 Governer no. : 0 421 813 552 Rack travel in mm : 14.10...14.20 Customer-spec. information Del.quantity cm3/: 23.4...23.6 Customer : SAAB SCANIA Engine : DSC 11 - 18 100 s: (23.1...23.9) cm3 : 0.61st version kW : 265.0 Spread : 2000 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 225.0 2nd speed Rack travel in mm : 4.5...4.9 Del.quantity cm3/ : 1.5...1.9 Test oil inlet temp. ., C : 38...42 100 s: (-) Overflow valve Spread cm3 : 0.3: 1 417 413 025 100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder GUIDE SLEEVE TRAVEL assembly : 1 688 901 019 rpm : 225 1st speed Openina : 1.20...1.60 travel mm pressure, bar : 207...210 2nd speed rpm : 350 travel mm : 2.40...3.00 Orifice plate 3rd speed rpm : 650 travel mm : 4.40...5.00 diameter mm : 0,8 rpm : 1045 4th speed : 8.40...8.60 travel mm rpm : 1160 Test lines : 1 680 750 015 5th speed : 9.90...10.30 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x1.50x600 Control-lever position Degree: -1 Speed rpm : 1040 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version

rpm : 700

Aneroid pressure h: 900

Speed

Test pressure, bar: 25...27

Del.quantity : 234.0...236.0 1000 : (231.0...239.0) Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testina: 1st rack travel in: 13.10 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1145...1175 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 7...15 Testina: rpm Speed : 100 Minimum rack trave: 6.10 rpm : 225 Rack travel in mm : 4.50...4.70 Rack travel in mm : 2.00 rpm : 340...400 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 900 Pressure : 14.10...14.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.50...10.90 2nd pressure hPa : 575 Rack travel in m: 13.00...13.10 3rd pressure hPa : 405 Rack travel in m: 11.10...11.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1000 Speed

Del.quantity cm3/: 223.0...231.0 1000 s: (221.0...233.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 150.0...154.0 1000 s: (148.0...156.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 275.0...-325.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225 Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

H16

Firing order : 1-2-4-5-3 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 e 3 : 0-72-144-216-288 Test sheet Phasing Edition : 02.05.89 Tolerance + - ... : 0.50 (0.75)Replaces : TSO-4113 Test oil Time to cyl. no. : 1 Combination no. : 9 400 087 394 BASIC SETTING Injection pump Pump designation : PE5P110A720RS479 1st speed rpm: 1050 EP type number : 9 400 087 040 Governor Rack travel in mm : 12.20...12.30 Governor design: : RQ300/1050PA718-1 Governer no. : 9 420 080 187 Del.quantity cm3/: 16.1...16.3 100 s: (15.8...16.6) Customer-spec. information Customer : DAIMLER-BENZ cm3 : 0.4Spread Engine : 0M355-5 A 100 s: (0.7) 1st version kW : 170.0 : 2100 rpm : 300.0Rated speed 2nd speed Rack travel in mm: 6.4...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.1...1.6 100 s: (-) cm3 : 0.4 Test oil Spread inlet temp. .. C : 38...42 100 s: (0.7) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 000 Control-lever position Degree: -3 rpm : 600 Inlet press., bar: 1.50 Rack travel in mm : 19.20...20.80 Test nozzle holder assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Openina | 1st version pressure, bar : 172...175 rpm : 1050 Speed Aneroid pressure h: 700 Del.quantity : 161.0...163.0 1000 : (158.0...166.0) Test Lines : 1 680 750 004 Spread cm3 : 4.00 Outside diameter 1000 : (7.50) x Wall thickness : 6.00x1.50x600 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ : 600 rpm Speed Rack travel in mm : 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 11.20 Speed rpm: 1095...1110 2nd rack travel in: 4.00 : 3.35...3.45 : (3.30...3.50) Prestroke mm

rpm : 1150...1180

Speed

H17

Rack travel in mm : 9.00...12.00

4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 8.50 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed rpm : 375...415 TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 12.20...12.30 2nd speed rpm : 600 Rack travel in m: 13.10...13.20 3rd speed rpm : 900 Rack travel in m: 12.70...13.00 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 13.10...13.20 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.30...10.40 2nd pressure hPa : 400 Rack travel in m: 12.40...12.50 3rd pressure hPa : 250 Rack travel in m: 11.10...11.30 START CUT-OUT 1/min : 230 (270) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 600 rpm Del.quantity cm3/: 177.0...181.0 1000 s: (174.0...184.0) Aneroid pressure h: 700

: 900

mq7

Del.quantity cm3/: 174.0...178.0 1000 s: (171.0...181.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 112.5...115.5 1000 s: (110.0...118.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20 rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 150.0...170.0 1000 s: (-) Rack travel in mm: 13.30...14.30

:

Remarks:

H18

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.95...4.05 : (3.90...4.10) Note remarks Rack travel in mm : 9.00...12.00 1-3-4-2 Firing order : CAT 7,0 d 3 : 02.05.89 Test sheet Edition Replaces : ISO-4113 Test oil Phasing : 0-90-180-270 : 9 400 087 395 Tolerance + - ... : 0.50 (0.75)Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PES4P100A720LS504 : 9 400 087 052 BASIC SETTING EP type number Governor Governor design. : RQV350...1100PA798-3 1st speed rpm: 1100 : 9 420 080 227 Governer no. Rack travel in mm : 10.10...10.20 Customer-spec. information Del.quantity cm3/: 8.9...9.0 Customer : CATERPILLAR : 3304 DINA 100 s: (8.7...9.3) Engine : 78.0 : 2200 cm3 : 0.3Spread 1st version kW Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Test oil Rack travel in mm : 6.8...7.0 Del.quantity cm3/ : 1.2...1.8 inlet temp. , C : 38...42 100 s: (1.0...1.9) cm3 : 0.3Overflow valve Spread : 9 401 087 214 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.00 with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly rpm : 1150 1st speed : 8.50...8.60 : 350 : 1.30...1.70 Opening travel mm : 207...210 pressure, bar 2nd speed rpm travel mm : 450 Orifice plate 3rd speed rpm : 3.20...3.50 travel mm diameter mm : 0,6 : 600 4th speed rpm : 4.40...4.70 travel mm rpm : 1000 : 1 680 750 008 Test lines 5th speed : 7.00...7.20 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 Control-lever position x Length mm Degree: -1 rpm : 1150 (A) Injection pump setting values Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

Speed

rpm : 1100

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 9.10 Speed rpm : 1130...1140 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1320 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed : 100 rpm Minimum rack trave: 9.50 : 350 rpm Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 rpm : 460...520 Speed CONSTANT REGULATION rpm : 320...390 Speed START CUT-OUT 1/min: 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 700 Speed Del.quantity cm3/: 84.5...88.5 1000 s: (82.5...90.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.70 rpm : 1130...1140 Speed

STARTING FUEL DELIVERY

Speed rpm: 100

H20

Del.quantity cm3/: 165.0...185.0 1000 s: (161.0...189.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.10...5.30

Remarks:

: 3.95...4.05 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.90...4.10) Rack travel in mm : 9.00...12.00 Note remarks : 1-3-4-2 Firing order : CAT 7,0 d 4 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Phasing : 0-90-180-270 Test oil Tolerance + - ., : 0.50 (0.75): 9 400 087 397 Combination no. Time to cyl. no. : 1 Injection pump Pump designation : PES4P100A720LS504 BASIC SETTING EP type number : 9 400 087 052 Governor Governor design. : RQV350...950PA798-4 rpm: 950 1st speed Governer no. : 9 420 080 228 Rack travel in mm : 8.90...9.00 Customer-spec. information Del.quantity cm3/: 7.9...8.0 : CATERPILLAR Customer : 3304 DINA 100 s: (7.6...8.2) Engine 1st version kW : 66.0 Spread cm3 : 0.3: 1900 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.7 Test oil Del.quantity cm3/: 1.2...1.8 inlet temp. , C . : 38...42 100 s: (1.0...1.9) cm3 : 0.3Overflow valve Spread 100 s: (0.5) : 9 401 087 214 (B) Setting of injection pump Inlet press., bar: 2.00 with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly rpm : 1050 1st speed : 8.50...8.60 travel mm Opening rpm : 350 : 207...210 pressure, bar 2nd speed : 1.30...1.70 travel mm rpm : 500 3rd speed Orifice plate : 3.30...3.60 rpm : 700 travel mm diameter mm : 0,6 4th speed : 5.10...5.40 travel mm rpm : 900 : 1 680 750 008 Test lines 5th speed travel mm : 6.80...7.00 Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00X2.00X600 Control-lever position Degree: -1 rpm : 1050 (A) Injection pump setting values Speed Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

Speed

rpm : 950

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Del.quantity : 79.0...00.0 1000 : (76.5...82.5) Spread cm3 : 3.50 (4.00) 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testina: 1st rack travel in: 7.90 Speed rpm : 980...990 2nd rack travel in: 4.00 rpm : 1025...1055 Speed 4th rack travel in: 1150 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed : 100 rpm Minimum rack trave: 8.50 Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00 rpm : 490...550 Speed CONSTANT REGULATION rpm : 320...390 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 950 1st speed Rack travel in m: 8.90...9.00 rpm : 600 2nd speed Rack travel in m: 9.40...9.50 d speed rpm : 750 3rd speed Rack travel in m: 9.10...9.30 START CUT-OUT Speed 1/min : 290 (310) FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 75.5,..79.5 1000 s: (73.5...81.5) rpm : 750 Speed Del.quantity cm3/: 77.0...81.0 1000 s: (75.0...83.0)

1st version 1mm rack travel less than full load rack tr: 7.90 rpm : 980...990 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 165.0...185.0 1000 s: (161.0...189.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.10...5.30 Remarks:

BREAKAWAY

H22

: 3.95...4.05 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.90...4.10) Note remarks Rack travel in mm : 9.00...12.00 : 1-3-4-2 Firing order Test sheet : CAT 7,0 d 5 Edition : 02.05.89 Replaces : ISO-4113 : 0-90-180-270 Test oil Phasing Combination no. : 9 400 087 398 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 Injection pump Pump designation : PES4P100A720LS504 : 9 400 087 052 BASIC SETTING EP type number Governor Governor design. : RQV350...1000PA798-5 1st speed rpm: 1000 : 9 420 080 229 Governer no. Rack travel in mm : 8.70...8.80 Customer-spec. information : CATERPILLAR Del.quantity cm3/ : 7.4...7.5 Customer Engine : 3304 DINA 100 s: (7.1...7.7) 1st version kW : 66.0 Spread cm3 : 0.3Rated speed : 2000 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm : 6.8...7.0 Test oil Del.quantity cm3/: 1.2...1.8 100 s: (1.0...1.9) inlet temp. , C : 38...42 Overflow valve cm3 : 0.3Spread 100 s: (0.5) : 9 401 087 214 (B) Setting of injection pump Inlet press., bar: 2.00 with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL rpm : 1050 1st speed : 8.50...8.60 **Opening** travel mm rpm : 350 : 207...210 pressure, bar 2nd speed : 1.30...1.70 travel mm rpm : 500 Orifice plate 3rd speed : 3.30...3.60 diameter mm : 0,6 travel mm rpm : 700 4th speed : 5.10...5.40 travel mm : 900 Test lines : 1 680 750 008 5th speed rpm : 6.80...7.00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 Control-lever position x Length mm Degree: -1 rpm : 1050 (A) Injection pump setting values Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

Speed

rpm : 1000

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

: 3.50 cm3 Spread : (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 61...69

Testina:

1st rack travel in: 7.70

rpm : 1030...1040 Speed

2nd rack travel in: 4.00

Speed rpm : 1070...1100 4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

: 100 Speed rpm Minimum rack trave: 8.50 Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00

: 490...550 Speed rom

CONSTANT REGULATION

rpm : 320...390 Speed

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 8.70...8.80

rpm : 500 2nd speed

Rack travel in m: 9.10...9.20

3rd speed rpm : 800

Rack travel in m: 8.90...9.10

START CUT-OUT

1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

Del.quantity cm3/: 60.5...64.5 1000 s: (58.5...66.5)

: 800 rpm

Del.quantity cm3/: 72.0...76.0 1000 s: (70.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.70

rpm : 1030...1040 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 165.0...185.0 1000 s: (161.0...189.0)

Rack travel in mm : 19.00...21.00

:

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 5.10...5.30

Remarks:

H24

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.95...4.05 Prestroke mm : (3.90...4.10) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : CAT 10,5 g5 Test sheet : 02.05.89 Edition Replaces : 0-60-120-180-240-300 : ISO-4113 Test oil Phasing Combination no. : 9 400 087 399 Injection pump Time to cyl. no. : 1 Pump designation : PES6P100A720LS502 EP type number : 9 400 087 050 BASIC SETTING Governor Governor design. : RQV350...1100PA798-1 Governer no. : 9 420 080 222 1st speed rpm: 1100 Rack travel in mm : 9.60...9.70 Customer-spec. information Del.quantity cm3/: 10.3...10.4 Customer : CATERPILLAR : 3306 DIT 100 s: (10.1...10.7) Engine 1st version kW : 138.2 Rated speed : 2200 cm3 : 0.3Spread 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Test oil Rack travel in mm: 6.4...6.6 inlet temp. , C : 38...42 Del.quantity cm3/: 1.2...1.8 100 s: (1.0...1.9) cm3 : 0.3Overflow valve Spread : 9 401 087 214 100 s: (0.5) Inlet press., bar: 2.00 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL rpm : 1150 1st speed : 8.50...8.60 Opening travel mm pressure, bar : 207...210 2nd speed rpm : 350 travel mm : 1.30...1.50 Orifice plate 3rd speed rpm : 500 : 2.90...3.20 diameter mm : 0,6 travel mm rpm : 700 4th speed travel mm : 4.50...4.80 rpm : 900 Test Lines : 1 680 750 008 5th speed : 6.00...6.20 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 x Length mm Control-lever position Degree: -1 rpm : 1150 (A) Injection pump setting values Speed Insp. values in parentheses Set equal delivery quant. Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

rpm : 1100

Speed

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Del.quantity : 103.5...107.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 8.60 rpm : 1130...1140 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1320 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 8...16 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed : 350 rpm Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 : 500...560 Speed rpm CONSTANT REGULATION rpm : 370...440 Speed START CUT-OUT 1/min : 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 105.5...109.5 1000 s: (103.5...111.5)

BREAKAWAY

Speed

Speed

H26

1st version

1mm rack travel less than

full load rack tr: 8.60

rpm

STARTING FUEL DELIVERY

rpm : 1130...1140

: 100

Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 4.90...5.10

Remarks:

:

: 3.95...4.05 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.90...4.10) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : CAT 10,5 g6 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75): 9 400 087 400 Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PES6P100A720LS502 : 9 400 087 050 EP type number BASIC SETTING Governor Governor design. : RQV350...950PA798-2 rpm: 950 1st speed : 9 420 080 226 Governer no. Rack travel in mm : 8.60...8.70 Customer-spec. information Del.guantity cm3/: 8.7...8.8 : CATERPILLAR Customer Engine : 3306 DIT 100 s: (8.4...9.0) 1st version kW : 104.0 Spread cm3 : 0.3: 1900 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Test oil Rack travel in mm : 6.2...6.4 Del.quantity cm3/: 1.2...1.8 inlet temp. , C : 38...42 100 s: (1.0...1.9) cm3 : 0.3Overflow valve Spread : 9 401 087 214 100 s: (0.5) Inlet press., bar: 2.00 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 assembly GUIDE SLEEVE TRAVEL rpm : 1055 1st speed : 8.50...8.60 Openina . travel mm : 300 pressure, bar : 207...210 2nd speed rpm : 1.10...1.40 travel mm rpm : 500 : 3.40...3.70 rpm : 700 3rd speed Orifice plate diameter mm : 0,6 travel mm 4th speed : 5.20...5.50 travel mm Test lines : 1 680 750 008 rpm : 900 5th speed : 6.80...7.00 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 x Length mm Control-lever position Degree: -1 rpm : 1055 (A) Injection pump setting values Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values ____ BEGINNING OF DELIVERY 1st version

rpm : 950

Speed

Test pressure, bar: 2...3

Del.quantity : 87.0....90.5) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 7.60 rpm : 980...990 Speed 2nd rack travel in: 4.00 rpm : 1025...1055 Speed 4th rack travel in: 1180 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 11...19 Testina: Speed : 100 rpm Minimum rack trave: 8.50 : 350 rpm Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 Speed rpm : 480...540 CONSTANT REGULATION rpm : 330...400 Speed TORQUE CONTROL Dimension a mm : 0.70 Torque control curve - 1st version rpm : 950 1st speed Rack travel in m: 8.60...8.70 rpm : 600 2nd speed Rack travel in m: 9.30...9.40 3rd speed rpm : 800 Rack travel in m: 9.00...9.20 START CUT-OUT Speed 1/min : 290 (310) FUEL DELIVERY CHARACTERISTICS 1st version Speed : 600 rpm Del.quantity cm3/: 100.0...104.0

: 800

man

Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

1000 s: (98.0...106.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.60 rpm : 980...990 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 350 Speed rpm Rack travel in mm : 4.90...5.10 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CAT 7,0 g 2 : 02.05.89 Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 087 401 Injection pump Pump designation : PES4P100A720LS501 : 9 400 087 051 EP type number Governor Governor design. : RQV350...1100PA798-1 Governer no. : 9 420 080 222 Customer-spec. information Customer : CATERPILLAR Engine : 3304 DIT 1st version kW : 107.4 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 9 401 087 214 Inlet press., bar: 2.00 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05 : (3.90...4.10) Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance $+ - \frac{1}{4}$.: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 12.4...12.5

100 s: (12.1...12.7)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.4 Del.quantity cm3/ : 1.2...1.8 100 s: (1.0...1.9)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

2nd speed rpm : 350 travel mm : 1.30...1.50 3rd speed rpm : 500

travel mm : 2.90...3.20 th speed rpm : 700

4th speed rpm : 700 travel mm : 4.50...4.80

5th speed rpm : 900

travel mm : 6.00...6.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm: 1100

Del.quantity : 124.0...125.0 1000 : (121.5...127.5) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 9.40 Speed rpm : 1130...1140 2nd rack travel in: 4.00 Speed rpm : 1185...1215 4th rack travel in: 1320 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 8...16 Testing: rpm : 100 Speed Minimum rack trave: 8.00 Speed rpm : 350 Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 : 500...560 Speed rpm CONSTANT REGULATION Speed rpm : 370...440 START CUT-OUT 1/min: 290 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 120.0...124.0 1000 s: (118.0...126.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1130...1140 Speed

Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.00...5.10

Remarks:

....

J02

Speed

STARTING FUEL DELIVERY

rpm : 100

: 3.95...4.05 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.90...4.10) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : CAT 10,5 j1 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 9 400 087 402 Injection pump Time to cyl. no. : 1 Pump designation : PES6P100A720LS508 EP type number : 9 400 087 053 BASIC SETTING Governor Governor design. : RQV350...875PA798-6 1st speed rpm: 875 : 9 420 080 236 Governer no. Rack travel in mm : 8.80...8.90 Customer-spec. information Del.guantity cm3/: 7.1...7.3 Customer : CATERPILLAR : 3306 DINA 100 s: (6.9...7.5) Engine 1st version kW : 87.2 Spread cm3 : 0.3Rated speed : 1750 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm : 6.7...6.9 Test oil inlet temp. , C : 38...42 Del.quantity cm3/: 0.9...1.5 100 s: (0.7...1.6) Overflow valve cm3 : 0.3Spread : 9 401 087 348 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.00 with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly rpm : 950 1st speed : 8.40...8.50 travel mm Opening | : 207...210 rpm : 3302nd speed pressure, bar : 0.90...1.70 travel mm : 450 Orifice plate 3rd speed rpm : 3.20...3.60 : 0.6 diameter mm travel mm : 650 4th speed rpm : 5.10...5.50 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position Degree: -1 x Wall thickness rpm : 950 : 6.00x2.00x600 x Length mm Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : <u>8</u>75

1st version

Speed

103

(A) Injection pump setting values

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 2...3

Insp. values in parentheses Set equal delivery quant.

cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 7.80 rpm : 910...920 Speed 2nd rack travel in: 4.00 rpm : 950...980 Speed 4th rack travel in: 1050 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 11...19 Testing: rpm : 100 Speed Minimum rack trave: 8.00 Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00 Speed rpm : 420...480 CONSTANT REGULATION Speed rpm : 350...420 TORQUE CONTROL Dimension a mm : 0.70 Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 8.80...8.90 2nd speed rpm : 600 Rack travel in m: 9.50...8.60 rd speed rpm : 700 Rack travel in m: 9.20...9.40 3rd speed rpm : 750 4th speed Rack travel in m: 9.00...9.30 START CUT-OUT 1/min : 250 (270) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.80 Speed rpm : 910...920

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 165.0...185.0 1000 s: (161.0...189.0) Rack travel in mm : 14.00...15.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.10...5.30

Remarks:

J04

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks : CAT 10,5 i1 : 1-5-3-6-2-4 Test sheet Firing order Edition : 02.05.89 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 : 9 400 087 403 Combination no. Tolerance $+ + \dots : 0.50 (0.75)$ Injection pump Pump designation : PES6P100A720LS511 Time to cyl. no. : 1 EP type number : 9 400 087 059 BASIC SETTING Governor Governor design: : RQV350/840...900PA 839 1st speed rpm: 900 : 9 420 080 233 Governer no. Rack travel in mm : 12.80...12.90 Customer-spec. information : CATERPILLAR Customer Del.guantity cm3/: 18.2...18.4 : 3306 DIT Engine 100 s: (18.0...18.7) 1st version kW : 190.0 Spread cm3 : 0.3Rated speed : 1800 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 6.4...6.6 Test oil inlet temp. ., C : 38...42 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) cm3 : 0.3 100 s: (0.5) Overflow valve Spread : 9 401 087 348 (B) Setting of injection pump Inlet press., bar: 2.00 with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL 1st speed rpm : 950 : 8.50...8.60 travel mm Openina | 2nd speed rpm: 350 pressure, bar : 207...210 travel mm : 0.50...1.50 3rd speed rpm : 500 travel mm : 2.40...2.60 4th speed rpm : 750 Orifice plate diameter mm : 0,6 travel mm : 2.40...2.60 Test lines : 1 680 750 008 5th speed rpm : 850 : 4.00...4.50 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x2.00x600 Control-lever position Degree: -1 Speed rpm : 925 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values

1st version

Speed

rpm : 900

J05

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Del.quantity : 182.5...184.5 1000 : (180.0...187.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 57...65 Testing: 1st rack travel in: 11.80 Speed rpm: 910...920 2nd rack travel in: 4.00 rpm : 930...960 Speed 4th rack travel in: 1050 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 5...13 Testing: Speed rpm: 100 Minimum rack trave: 7.00 Speed rpm : 350 Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 Speed rpm : 770...830 START CUT-OUT 1/min : 290 (310) Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 910...920 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 195.0...215.0 1000 s: (191.0...219.0) Rack travel in mm : 14.00...15.00 LOW IDLE : 350 rpm Rack travel in mm : 4.70...4.90 Remarks:

APPLICATION

Generator

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CAT 7,0 f 1 Test sheet Edition : 02.05.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 404 Injection pump Pump designation : PES4P100A720LS510 EP type number : 9 400 087 058 Governor Governor design. : RQV350/840...900PA : 9 420 080 233 Governer no. Customer-spec. information : CATERPILLAR Customer : 3304 DIT Engine 1st version kW : 135.0 : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 9 401 087 348 Inlet press., bar: 2.00 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate : 0,6 diameter mm Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

J07

Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 20.3...20.5 100 s: (20.0...20.7) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 350.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 950 : 8.50...8.60 travel mm 2nd speed rpm : 350 : 0.50...1.50 travel mm 3rd speed rpm : 500 : 2.40...2.60 travel mm 4th speed rpm : 750 travel mm : 2.40 : 2.40...2.60 5th speed rpm : 850 travel mm : 4.00 : 4.00...4.50 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 925 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 900

Speed

Del.quantity 1000 : 203.0...205.0 : (200.5...207.5) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 12.90 rpm : 910...920 Speed 2nd rack travel in: 4.00 rpm : 940...970 Speed 4th rack travel in: 1050 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 5...13 Testing: Speed : 100 rpm Minimum rack trave: 7.00 rpm : 350 Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 Speed rpm : 770...830 START CUT-OUT 1/min: 290 (310) Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 910...920 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 195.0...215.0 1000 s: (191.0...219.0) Rack travel in mm : 14.00...15.00 LOW IDLE rpm Rack travel in mm : 4.70...4.90 Remarks:

APPLICATION Generator

J08

: 3.95...4.05 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.90...4.10) Note remarks Rack travel in mm : 9.00...12.00 : 1-3-4-2 Firing order Test sheet : CAT 7,0 g 3 Edition : 02.05.89 Replaces : ISO-4113 Test oil Phasing : 0-90-180-270 Combination no. : 9 400 087 405 Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) Time to cyl. no. : 1 Injection pump Pump designation : PES4P100A720LS501 EP type number : 9 400 087 051 BASIC SETTING Governor Governor design. : RQV350...1100PA828 1st speed rpm: 1100 : 9 420 080 232 Governer no. Rack travel in mm : 10.80...10.90 Customer-spec. information Del.quantity cm3/: 13.0...13.2 Customer : CATERPILLAR 100 s: (12.8...13.4) Engine : 3304 DIT 1st version kW : 103.0 cm3 : 0.3Spread : 2200 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Test oil Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.4...2.0 inlet temp. , C : 38...42 100 s: (1.2...2.1) cm3 : 0.3 Overflow valve Spread : 9 401 087 348 100 s: (0.5) Inlet press., bar: 2.00 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 1150 Opening | travel mm : 8.50...8.60 : 350 pressure, bar : 207...210 2nd speed rpm : 1.30...1.50 travel mm 500 Orifice plate rpm : 3rd speed : 2.90...3.20 rpm : 700 diameter mm : 0,6 travel mm 4th speed : 4.50...4.80 travel mm rpm : 900 : 1 680 750 008 Test lines 5th speed : 6.00...6.20 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 x Length mm Control-lever position Degree: -1 rpm : 1150 (A) Injection pump setting values Speed Insp. values in parentheses Set equal delivery quant. Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP per values ___ BEGINNING OF DELIVERY 1st version

Speed

rpm : 1100

Aneroid pressure h: 600

Test pressure, bar: 2...3

Del.quantity : 130.0...132.0 1000 : (128.0...134.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 61...69 Testing: 1st rack travel in: 9.80 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1210...1240 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00 rpm : 530...590 Speed CONSTANT REGULATION rpm : 370...440 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 600 Pressure Rack travel mm : 10.80...10.90 Measurement 1/min : 500Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 310 Rack travel in m: 10.40...10.50 3rd pressure hPa : 210 Rack travel in m: 9.30...9.50 START CUT-OUT 1/min : 290 (310) Speed

1st version Aneroid pressure h: 600 : 700 Speed rpm Del.quantity cm3/: 123.0...127.0 1000 s: (121.0...129.0) cm3 : 5.00Spread 1000 s: (7.00) Aneroid pressure h: -Speed rpm : 1100 Del.quantity_cm3/ : 90.0...92.0 1000 s: (88.0...94.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.10...5.30 Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: CAT 10,5 g5 Test sheet Edition : 02.05.89 Replaces

Test oil : TSO-4113

Combination no. : 9 400 087 406

Injection pump

Pump designation : PES6P100A720LS502 EP type number : 9 400 087 050

Governor

Governor design. : RQV350...1100PA828

: 9 420 080 232 Governer no.

Customer-spec. information

Customer : CATERPILLAR

Engine : 3306 DITA

: 191.5 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C : 38...42

Overflow valve

: 9 401 087 348

Inlet press., bar: 2.00

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 2...3

: 3.95...4.05 : (3.90...4.10) Prestroke mm Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 14.7...14.9

100 s: (14.4...15.1)

Spread cm3 : 0.3

100 s: (0.6)

rom : 350.02nd speed

Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1150 1st speed

: 8.50...8.60 travel mm rpm : 350 2nd speed

: 1.30...1.50 travel mm

rpm : 500 3rd speed

travel mm 2.90...3.20

: 700 4th speed man

: 4.50...4.80 rpm : 900 travel mm

5th speed

travel mm : 6.00...6.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 500

Del.quantity : 74(.0...14)... 1000 : (144.5...151.5) : 3.50 : (6.00) cm3 Spread 1000 RATED SPEED 1st version Control lever position degrees: 63...71 Testina: 1st rack travel in: 11.40 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Testing: rpm : 100 Speed Minimum rack trave: 8.00 rpm : 350 Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 : 530...590 Speed rpm CONSTANT REGULATION rpm : 370...440Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 500 Pressure : 12.40...12.50 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.90...10.00 2nd pressure hPa : 300 Rack travel in m: 11.70...11.80

1st version Aneroid pressure h: 500 Speed rpm : 700 Del.quantity cm3/ : 149.0...153.0 1000 s: (147.0...155.0) Spread cm3 : 5.001000 s: (7.00) Aneroid pressure h: -Speed rpm : 1100 Del.quantity cm3/ : 108.0...110.0 1000 s: (105.5...112.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.40 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed man Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.00...5.20 Remarks:

Speed

3rd pressure hPa : 200

START CUT-OUT

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1/min: 290 (310)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CAT 10,5 g8 : 02.05.89 Test sheet Edition

Test oil : ISO-4113

Combination no. : 9 400 087 407

Injection pump

Pump designation : PES6P100A720LS502 EP type number : 9 400 087 050

Governor

Governor design. : RQV350...1100PA828-1

: 9 420 080 235 Governer no.

Customer-spec. information

Customer : CATERPILLAR

: 3306 DITA Engine

1st version kW : 174.5 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 9 401 087 348

Inlet press., bar: 2.00

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

: 3,95...4.05 Prestroke mm : (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \dots : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 15.3...15.5

100 s: (15.1...15.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150 : 8.50...8.60 travel mm

rpm : 350 2nd speed

travel mm : 1.30...1.50

rpm : 500 3rd speed

: 2.90...3.20 travel mm

rpm : 700 4th speed

: 4.50...4.80 travel mm

rpm : 900 5th speed

: 6.00...6.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 600

Del.quantity : 153.0...155.0 1000 : (151.0...157.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 62...70 Testing: 1st rack travel in: 11.90 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1250...1280 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 9...17 Testing: rpm : 100 Speed Minimum rack trave: 8.00 Speed rpm : 350 Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 rpm : 500...560 Speed CONSTANT REGULATION rpm : 370...440 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 600 Rack travel mm : 12.90...13.00 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.90...10.00 2nd pressure hPa : 340 Rack travel in m: 12.00...12.10 3rd pressure hPa : 200

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1/min: 290 (310)

1st version Aneroid pressure h: 600 Speed rpm : 700 Del.quantity cm3/ : 159.0...163.0 1000 s: (157.0...165.0) cm3 : 5.00 Spread 1000 s: (7.00) Aneroid pressure h: -Speed rpm : 1100 Del.quantity cm3/ : 108.0...110.0 1000 s: (105.5...112.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 157.0...177.0 1000 s: (153.0...181.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.90...5.10

Rack travel in mm : 19.00...21.00

Remarks:

:

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Speed

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : VOL 10,0 s5 Test sheet Firing order : 02.05.89 Edition Replaces : ISO-4113 Test oil Phasing Combination no. : 9 400 087 409 Tolerance + - ... : 0.50 (0.75)Injection pump Pump designation : PE6P12OA32ORS3186 Time to cyl. no. : 1 EP type number : 0 411 826 756 Governor BASIC SETTING Governor design. : RQV250...1025PA657-1st speed : 9 420 080 264 Governer no. Rack travel in mm : 12.10...12.20 Customer-spec. information : VOLVO Del.quantity cm3/: 21.0...21.2 Customer : TD102FS Engine : 250.0 1st version kW Spread : 2050 Rated speed TEST BENCH REQUIREMENTS 2nd speed rpm : 250.0 Rack travel in mm : 3.9...4.1 Test oil Del.quantity cm3/: 1.6...2.1 inlet temp. , C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 GUIDE SLEEVE TRAVEL assembly 1st speed Opening travel mm pressure, bar : 207...210 2nd speed Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm

: 4.10...4.90 travel mm rpm : 700 3rd speed travel mm : 6.30...6.70 rpm : 900 4th speed : 6.30...6.70 travel mm rpm : 1025 5th speed : 7.30...7.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1080 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed

: 2.60...2.70 : (2.55...2.75)

rpm : 700

cm3 : 0.5

cm3 : 0.5

rpm : 250

rpm : 500

100 s: (0.7)

100 s: (0.9)

100 s: (20.7...21.5)

100 s: (1.3...2.3)

: 1.10...1.30

: 1-5-3-6-2-4

: 0-60-120-180-240-300

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(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Insp. values in parentheses Set equal delivery quant.

Aneroid pressure h: 1000 Del.quantity : 210.0...215.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.10 rpm : 1055...1065 Speed 2nd rack travel in: 4.00 Speed rpm : 1120...1150 4th rack travel in: 1250 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 4...12 Testing: Speed rpm : 100 Minimum rack trave: 5.40 Speed rpm : 250 Rack travel in mm : 3.90...4.10 CONSTANT REGULATION Speed rpm : 250...350 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1000

: 12.10...12.20 Rack travel mm Measurement 1/min: 500 Speed

1st pressure hPa : -Rack travel in m: 8.70...8.90

2nd pressure hPa : 130

Rack travel in m: 9.10...9.20

3rd pressure hPa : 530

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: rpm : 700 Speed

Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 rpm : 1055...1065 Speed

LOW IDLE

: 250 Speed rpm Rack travel in mm : 3.90...4.10

Del.quantity cm3/: 16.0...21.0 1000 s: (13.5...23.5) Spread cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm. Permissible alteration from 2.20...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CAT 7,0 g 4 Test sheet : 02.05.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 087 411

Injection pump

Pump designation : PES4P100A720LS501 EP type number : 9 400 087 051

Governor

Governor design. : RQV350...1100PA828-3

: 9 420 080 266 Governer no.

Customer-spec. information

: CATERPILLAR Customer

: 3304 DIT. Engine

1st version kW : 103.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 7 401 087 348

Inlet press., bar: 2.00

Test nozzle holder

: 1 688 901 017 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 2...3

: 3.95...4.05 Prestroke mm : (3.90...4.10) Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1150 1st speed

: 8.50...8.60 travel mm

rpm : 350 2nd speed

1.30...1.50 travel mm 500 rpm : 3rd speed

travel mm

2.90...3.20

rpm : 700 4th speed

: 4.50...4.80 travel mm

rpm : 900 5th speed

: 6.00...6.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 500

Del.quantity : 129.0...131.0 1000 : (127.0...133.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 62...70 Testing: 1st rack travel in: 10.10 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Testing: : 100 Speed rpm Minimum rack trave: 8.00 rpm : 350 Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 : 530...590 Speed rpm CONSTANT REGULATION Speed rpm : 370...440 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 500 mm : 11.10...11.20 Speed rpm Pressure Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.20

2nd pressure hPa : 290 Rack travel in m: 10.20...10.30 3rd pressure hPa : 125 Rack travel in m: 8.80...9.00 START CUT-OUT 1/min : 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 500 Speed rpm : 700
Del.quantity cm3/: 128.0...132.0
1000 s: (126.0...134.0) Aneroid pressure h: Speed rpm : 1100 Del.quantity cm3/ : 81.0...83.0 1000 s: (79.0...85.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 157.0...177.0

1000 s: (153.0...181.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.10...5.30

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 10,0 f 2 : 02.05.89 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 087 413 Injection pump Pump designation : PE5P100A720RS491 EP type number : 9 400 087 044 Governor Governor design. : RQ300/1100PA269-1 : 0 421 801 237 Governer no. Customer-spec. information : DAIMLER-BENZ Customer Engine : OM 355-5 1st version kW : 150.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. ., C . : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test Lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

Rack travel in mm : 9.00...12.00

: 3.50...3.60 : (3.45...3.65)

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Firing order : 1- 2- 4- 5- 3 : 0-72-144-216-288 Phasing Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.70...12.80 Del.quantity cm3/: 12.5...12.7 100 s: (12.3...12.9) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 8.1...8.3 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.5) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 600 Rack travel in mm : 13.40...13.90 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Del.quantity : 125.0...129.0) : 3.50 cm3 Spread : (6.00) 1000 RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm : 13.6 Testing: 1st rack travel in: 11.70 Speed rpm : 1145...1160 2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350

rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 8.1 Testina: Speed rpm : 100 Minimum rack trave: 9.70 Speed rpm: 300
Rack travel in mm: 8.00...8.20
Rack travel in mm: 2.00
Speed rpm: 375...415 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 117.0...121.0 1000 s: (114.5...123.5) cm3 : 5.00 Spread 1000 s: (7.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 Speed rpm : 1145...1160 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CAS 8,3 k 5 : 16.6.89 Test sheet Edition : 6.7.88 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 005

Injection pump

Pump designation : PES6A95D42OLS2551

Governor

Governor design. : RSV375...1050A2B2034

Customer-spec. information : CASE Customer

Engine : A-504 BD

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: WS 187P

Inlet press., bar: 1.50

Test nozzle holder

: 9 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 9 681 230 705

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2.20...2.30 : (2.15...2.35)
Rack travel in mm : 13.35

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300 Tolerance + - . : 0.50(0.75)

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 13.35

Del.quantity cm3/: 11.3...11.5

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 375
Rack travel in mm : 8.10
Del.quantity cm3/ : 1.6...2.2
100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 113.0...115.0 Del.quantity 1000 : (111.0...117.0)

: 3.0 Spread cm3

1000 : (-)

RATED SPEED

1st version

Control Lever

position degrees: 48...56

Testina:

1st rack travel in: 12.25

Speed rpm : 1090...1100 2nd rack travel in: 6.90

Speed rpm : 1170...1200
3rd rack travel in: 2.00
Speed rpm : 1205...1235

LOW IDLE 1

Control lever

position degrees: 27...35

Setting point w/out bumper spring

rpm : 375

Rack travel in mm : 8.15

Testing: rpm : 150 Speed Minimum rack trave: 19.00 Speed rpm : 375 Rack travel in mm : 8.10...8.20 Rack travel in mm : 3.00 Speed : 530...570 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 425 Rack travel in m: 14.50...14.60 START CUT-OUT 1/min : 190 Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 113.0...117.0 1000 s: (111.0...119.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.25 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (-) HIGH IDLE 1st version Speed : 1185 rpm Rack travel in mm : 6.80...7.00 LOW IDLE Speed rpm : 375
Del.quantity cm3/ : 16.0...22.0
1000 s: (-)

Remarks:

: CASE NO. A-151333

APPLICATION

Tractor (tractor engines)

J22

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 c 4 Edition : 07.04.89

: 15.6.88 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 045

Injection pump

Pump designation : PES6A95D41ORS2522-1

EP type number : 9 410 230 017

Governor

Governor design: : RSV425...1100A2C2161

: 9 420 234 140 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6466T Engine

1st version kW : 106.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance $+ - \dots : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 425.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 500

Anerota p. Del.quantity 1000 : 86.5...88.5 : (84.0...90.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testina:

1st rack travel in: 8.00

rpm : 1145...1155 Speed

J23

2nd rack travel in: 4.00 rpm : 1185...1195 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rom : 425 Rack travel in mm : 5.1 Testing: rpm : 100 Speed Minimum rack trave: 19.00 : 425 Speed rpm Rack travel in mm: 5.50...5.70 Rack travel in mm: 2.00 : 590...650 Speed rom TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 9.00...9.10 2nd speed rpm : 650 Rack travel in m: 10.40...10.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : : 10.20...10.40 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 100 Rack travel in m: 10.30...10.40 2nd pressure hPa : 149 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 500 : 650 Speed rpm Del.quantity cm3/: 100.5...105.5 1000 s: (98.5...108.0)

1000 s: (87.0...95.0)

1st version 1mm rack travel less than full load rack tr: 8.00 rpm : 1145...1155 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 155.0...175.0 1000 s: (150.0...180.0) Rack travel in mm : 19.00...21.00 HIGH IDLE 1st version Speed : 1180 rpm Rack travel in mm : 5.30...5.50 LOW IDLE 1000 s: (5.50) Remarks:

: JOHN DEERE # RE23750

Setting without torque-control spring retainer with 1 mm control-rod travel less. Raising of full-load delivery with torque-control spring retainer to 9,0 mm control-rod travel.

Start-of-delivery mark 16, cam angle after start of delivery cyl. 1

BREAKAWAY

Speed

Aneroid pressure h:

Del.quantity cm3/:

rpm : 500

124

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 j 1 Edition : 07.04.89 Replaces : 14.1.88 : ISO-4113 Test oil

: 9 400 230 046 Combination no.

Injection pump

Pump designation : PES6A95D41ORS2561 : 9 410 230 006 EP type number

Governor

: RSV600...1100A2C2048 Governor design.

-1L

: 9 420 234 157 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6466T Engine

1st version kW : 110.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.35x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95

: (1.80...2.00)

Rack travel in mm : 10.50

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 600.0 2nd speed Rack travel in mm : 5.0...5.2 Del.guantity cm3/: 1.2...1.6 100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 91.U...95.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 8.90

Speed rpm : 1145...1155

2nd rack travel in: 4.00

J25

: 1195...1225 Speed rpm 4th rack travel in: 1300 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 600 Rack travel in mm : 4.6

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 600 rpm

Rack travel in mm : 5.00...5.20

Rack travel in mm : 2.00

: 710...770 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 9.90...10.00

2nd speed rpm : 950

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

rpm_ : 950 Speed

Del.quantity cm3/: 104.0...108.0

1000 s: (101.5...110.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 155.0...175.0

1000 s: (150.0...180.0) Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed : 1200 rpm

Rack travel in mm : 4.70...4.90

LOW IDLE

Speed : 600 rpm

J26

Rack travel in mm : 5.00...5.20 Del.quantity cm3/ : 12.0...16.0

1000 s: (9.5...18.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE10472

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 10.5, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 7,6 h : 07.04.89 Test sheet Edition : 15.6.88 : ISO-4113 Replaces Test oil Combination no. : 9 400 230 067 Injection pump Pump designation : PES6A1000410RS2676 : 9 410 230 023 EP type number Governor : RSV425...1100A2C2161 Governor design. -2L : 9 420 234 100 Governer no. Customer-spec. information Customer : JOHN DEERE : 6466A Engine

: 2200

: 1 457 413 010

: 0 681 343 009

: 172...175

: 1 680 750 008

: 6.00X2.00X600

: 2.45...2.55

: (2.40...2.60)

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

1st version kW : 141.0

inlet temp. , C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

pressure, bar

TEST BENCH REQUIREMENTS

Rated speed

Overflow valve

assembly

Test lines

x Length mm

Prestroke mm

Outside diameter x Wall thickness

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Openina |

Test oil

Phasing : 0-60-120-180-240-300 Tolerance $+ - \frac{1}{4} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 10.20...10.30 Del.quantity cm3/: 11.1...11.3 100 s: (10.9...11.5) Spread cm3 : 0.3100 s: (0.6) rpm : 425.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 2.4...2.8 100 s: (2.1...3.0) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100
Aneroid pressure h: 500
Del.quantity : 111.0...113.0
1000 : (109.0...115.0)
Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 43...51 Testing: 1st rack travel in: 9.20 Speed rpm : 1145...1155

Rack travel in mm : 10.50

Firing order

: 1-5-3-6-2-4

J27

2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 425 Rack travel in mm : 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 425 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed : 600...660 rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.20...10.30 2nd speed rpm : 750 Rack travel in m: 11.40...11.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 9.35...9.55 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.00...11.10 2nd pressure hPa : 80 Rack travel in m: 9.70...10.10 3rd pressure hPa : 500 Rack travel in m: 11.40...11.60 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 500 rpm : 750 Del.quantity cm3/: 127.5...130.5 1000 s: (125.0...133.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: -1000 s: (85.0...93.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0) Rack travel in mm: 19.40

HIGH TOLE

1st version : 1190 Speed rpm Rack travel in mm : 5.70...5.90

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 24.0...28.0
1000 s: (21.5...30.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE16418

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5, after start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a11 Test sheet : 02.05.89 Edition : 1.9.88 Replaces Test oil : ISO-4113 : 9 400 230 089 Combination no. Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor : RSV400...1100A0c2190 Governor design. -3R : 9 420 234 125 Governer no. Customer-spec. information Customer : C.D.C. Engine : 6 0 8.3 : 112.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate : 0,6 diameter mm : 1 680 750 014 Test lines Outside diameter x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 10.60...10.70 Del.quantity cm3/: 9.5...9.7 100 s: (9.3...9.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 : 95.5...97.5 Del quantity 1000 : (93.5...99.5) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED 1st version Control Lever position degrees: 41...49 Testina:

K01

x Length mm

1st rack travel in: 9.60 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring : 400 Speed rpm Rack travel in mm : 5.4 Testina: : 100 Speed rpm Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 445...505 Speed rpm BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.60 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50 1000 s: (5.50) Remarks: : C.D.C # 3911953 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a20 Edition : 02.05.89

Replaces

Test oil : ISO-4113

: 9 400 230 089CA Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

: 3911954 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 126.8 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

K03

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1200...1230 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 27...35 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testina: Speed rpm : 100 Minimum rack trave: 19.00 : 400 rpm Rack travel in mm: 5.80...6.00
Rack travel in mm: 2.00
Speed rpm: 500...560 TORQUE CONTROL 2nd speed rpm : 750

Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 10.70...10.80 Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm Tel.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

K₀4

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm Less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a21 Test sheet : 02.05.89 Edition

Replaces

Test oil : TSO-4113

: 9 400 230 089CB Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1250A0C2190

Cust. part no. : 3911958

Customer-spec. information Customer : C.D.C.

Engine : 6 CT 8.3 Ltr

1st version kW : 160.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Phasing

: 0-60-120-180-240-300

: 1-5-3-6-2-4

: 2.80...2.90

: (2.75...2.95)

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

Rack travel in mm: 10.50

BASIC SETTING

Prestroke mm

Firing order

1st speed

rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

Del.quantity : 121.0...123.0 1000 : (119.0...125.0) cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

K05

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 rpm : 1360...1390 Speed 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 26...34 Setting point w/out bumper spring Speed rpm: 400 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed rpm : 495...555 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 ad speed rpm : 750 2nd speed Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 750 rpm Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Speed rpm: 400 Rack travel in mm: 5.80...6.00

K06

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a22 Test sheet Edition : 02.05.89

Replaces

Test oil : ISO-4113

: 9 400 230 089CC Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911962

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3ltr Engine

1st version kW : 174.5 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.80...2.90

: (2.75...2.95) Rack travel in mm : 10.50

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.70...12.80

Del.guantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rom : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 126.5...128.5 : (124.5...130.5) Del.quantity 1000

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

K07

1st rack travel in: 11.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 3rd rack travel in: 4.00 Speed rpm : 1205...1235 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed rom : 455...515 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a23 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 230 089CD Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1000A0C2190 Cust. part no. : 3908566 Customer-spec. information Customer : C.D.C. : 6 CTA 8.3 Engine : 171.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening pressure, bar : 207...210 Orifice plate : 0.6 diameter mm Test Lines : 1 680 750 014

Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 27...29

per values

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 131.0...133.0 Del.quantity 1000 : (129.0...135.0) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 12.20 rpm : 1050...1060 Speed 2nd rack travel in: 4.00 : 1130...1160 Speed rpm 3rd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.1 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 400 rpm Rack travel in mm : 5.50...5.70 Rack travel in mm: 2.00 : 460...520 Speed rpm **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1050...1060 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 14.0...18.0 1000 s: (11.5...20.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a24 Test sheet Edition : 02.05.89

Replaces

: ISO-4113 Test oil

: 9 400 230 089CE Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911959

Customer-spec. information Customer : C.D.C.

Engine : 6 CTA 8.3 Ltr.

: 157.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firina order

: 0-30-120-180-240-300 Phasing

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 111.0...113.0

1000 : (109.0...115.0)

: 3.50 Spread cm3 1000

(6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.00 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed rpm : 460...520 TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1100
Rack travel in m: 12.00...12.10 1st speed 2nd speed rpm : 750 Rack travel in m: 13.30...13.50 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 130.5...134.5 1000 s: (128.5...136.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: CUM 8,3 a25 Test sheet Edition : 02.05.89

Replaces

Test oil : ISO-4113

: 9 400 230 089CF Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911543

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 ltr. Engine

: 138.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 Del.quantity 1000 : (104.5...110.5)

cm3 : 3.50 Spread : (6,00) 1000

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 27...35

Setting point w/out bumper spring rpm : 400

Rack travel in mm: 5.5

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.40...11.50 2nd speed rpm : 750 Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Prestroke mm : 2.80...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS : (2.75...2.95) Rack travel in mm : 10.50 Note remarks : 1-5- 3- 6- 2- 4 Firing order : CUM 8,3 a26 Test sheet Edition : 02.05.89 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 089CG Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 BASIC SETTING Governor Governor design. : RSV400...1000A0c2190 rpm: 1000 1st speed Rack travel in mm : 11.10...11.20 Customer-spec. information Customer : C.D.C. Del.quantity cm3/: 10.0...10.2 : 6 C 8.3 Engine 100 s: (9.8...10.4) 1st version kW : 127.0 Rated speed : 2000 Spread cm3 : 0.3TEST BENCH REQUIREMENTS 100 s: (0.6) Test oil 2nd speed rpm : 400.0inlet temp. , C : 38...42 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve : 1 417 413 047 Spread 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 017 assembly Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Opening | : 207...210 pressure, bar Governor spring pre-tension Orifice plate Click setting x : ?diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 014 1st version : 1000 Speed rpm ; 100.0...102.0 Del.quantity Outside diameter 1000 : (98.0...104.0) x Wall thickness x Length mm : 6.00x2.00x600 cm3 : 3.50 Spread 1000 : (6.00)(A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.10

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1080...1110 4th rack travel in: 1150 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 450...510 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version rpm : 1000

1st speed Rack travel in m: 11.10...11.20

: 750 2nd speed rpm Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 400 rpm

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 : (2.75...2.95) Prestroke mm Note remarks Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : CUM 8,3 a27 Test sheet Edition : 02.05.89 Replaces Test oil : ISO-4113 Phasina : 0-60-120-180-240-300 Combination no. : 9 400 230 089CH Tolerance $+ - \frac{1}{2}$: 0.50 (0.75) Time to cyl. no. : 1 Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number BASIC SETTING Governor Governor design. : RSV400...1050A0C2190 1st speed rpm: 1050 Customer-spec. information Rack travel in mm : 11.10...11.20 Customer : C.D.C. Del.quantity cm3/: 10.1...10.3 : 6 C 8.3 Engine 100 s: (9.9...10.5) 1st version kW : 131.0 Rated speed : 2100 cm3 : 0.3Spread TEST BENCH REQUIREMENTS 100 s: (0.6) rpm : 400.0 Test oil 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0) inlet temp., C : 38...42 Overflow valve : 1 417 413 047 cm3 : 0.3Spread 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 017 assembly Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 **Opening** : 207...210 pressure, bar Governor spring pre-tension Orifice plate Click setting x : ? : 0,6 diameter mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 014 1st version rpm : 1050 Speed Outside diameter Del.quantity : 101.5...103.5 1000 : (99.5...105.5) cm3 : 3.50 x Wall thickness x Length mm : 6.00x2.00x600 Spread 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values ____ 1st version Control lever BEGINNING OF DELIVERY position degrees: 44...52 Test pressure, bar: 27...29

1st rack travel in: 10.10

rpm : 1090...1100 Speed 2nd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 26...34

Setting point w/out bumper spring

rpm : 400 Rack travel in mm : 5.1

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00 rpm : 480...540 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.10...11.20

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom

Del.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 400 rpm Speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 14.0...18.0

1000 s: (11.5...20.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a28 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil : 9 400 230 089CI Combination no. Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV500...1050A0C2190 Customer-spec. information Customer : C.D.C. Engine : 6 C 8.3 : 123.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. . C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina 0 : 207...210 pressure, bar Orifice plate : 0,6 diameter mm Test lines : 1 680 750 014

: 6.00x2.00x600

Insp. values in parentheses Set equal delivery quant.

(A) Injection pump setting values

: (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm: 1050 1st speed Rack travel in mm : 10.70...10.80 Del.guantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) rpm : 500.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Dearee: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Del.quantity : 96.5...98.5 1000 : (94.5...100.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 53...61 Testina: 1st rack travel in: 9.70

Prestroke mm

: 2.80...2.90

Outside diameter

x Wall thickness

per values ____

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

x Length mm

Speed rpm : 1095...1105 2nd rack travel in: 4.00

rpm : 1155...1225 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 35...44

Setting point w/out bumper spring

rpm : 500 Rack travel in mm : 5.1

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 500

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

rpm : 590...650

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 10.70...10.80 d speed rpm : 750

2nd speed

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rom : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a29 Test sheet Edition : 02.05.89 Replaces Test oil : ISO-4113 : 9 400 230 089CJ Combination no. Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1050A0C2190 Customer-spec. information Customer : C.D.C. Engine : 6 C 8.3 : 131.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014

Outside diameter x Wall thickness

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 6.00x2.00x600

BEGINNING OF DELIVERY

x Length mm

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed : 1050 rpm

: 101.5...103.5 Del.quantity 1000 : (99.5...105.5)

: 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.10

: 1090...1100 Speed rpm 2nd rack travel in: 4.00 Speed rpm: 1145...1175 4th rack travel in: 1250 rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 26...34 Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.1

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00 Speed : 480...540 rpm

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.10...11.20

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 119.5...123.5 100G s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rom : 100

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a30 : 02.05.89 Edition

Combination no. : 9 400 230 089CK

Injection pump

Pump designation : PES6A100D320/3RS2691

: ISO-4113

EP type number : 9 410 230 025

Governor

Replaces Test oil

Governor design. : RSV400...1250A0C2190

Customer-spec. information Customer : C.D.C.

Engine : 6 CT 8.3 ltr

: 160.0 1st version kW Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp., C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/ : 12.1...12.3

100 s: (11.9...12.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1250 : 121.0...123.0 Del.quantity : 121.0...125.0)

3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testina:

1st rack travel in: 11.00

rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testina: rpm : 100 Speed Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 495...555 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1250 1st speed Rack travel in m: 12.00...12.10 rpm : 750 2nd speed Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rom Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE

rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50)

Remarks: Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a31 Test sheet Edition : 02.05.89 Replaces Test oil : ISO~4113 Combination no. : 9 400 230 089CL Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV500...1050A0C2190 Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 123.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Lenath mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \frac{1}{2}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rom: 1050 1st speed

Rack travel in mm : 10.70...10.80

Del.guantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 500.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 9.70

: 1095...1105 Speed rom 2nd rack travel in: 4.00

rpm : 1155...1225 Speed 4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 35...44

Setting point w/out bumper spring

: 500 rpm Rack travel in mm : 5.1

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 : 500 Speed rpm

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

: 590...650 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed

t speed rpm : 1050 Rack travel in m: 10.70...10.80

2nd speed rpm : 750

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

bsea2 : 500 rpm

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a32 Test sheet

Edition : 02.05.89

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 089CM

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Customer-spec. information : C.D.C. Customer

: 6 0 8.3 Engine

: 133.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 101.0...103.0 Del.quantity

1000 : (99.0...105.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.30

rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1210...1240 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 30...38 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.1 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 505...565 TORQUE CONTROL rpm : 1100 1st speed

Torque control curve - 1st version Rack travel in m: 11.30...11.40 2nd speed rpm : 750 Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/ : 116.5...120.5 1000 s: (114.5...122.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks: Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Note remarks : 1-5-3-6-2-4 Firing order : CUM 8,3 a33 Test sheet : 02.05.89 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 9 400 230 089CN Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 BASIC SETTING EP type number Governor Governor design. : RSV400...1050A0C2190 1st speed rpm: 1050 : 9 420 234 Governer no. Rack travel in mm : 12.90...13.00 Customer-spec. information Del.quantity cm3/: 12.9...13.1 Customer : C.D.C. : 6 0 8.3 100 s: (12.7...13.3) Engine : 174.0 : 2100 cm3 : 0.31st version kW Spread Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Test oil Del.quantity cm3/: 1.6...2.0 inlet temp. ., C : 38...42 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 rpm : 800 assembly : 1 688 901 017 Speed Rack travel in mm : 0.30...0.70 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : ?Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version Test lines : 1 680 750 014 rpm : 1050 Speed : 129.0...131.0 Del.quantity 1000 : (127.0...133.0) Outside diameter : 3.50 x Wall thickness cm3 Spread : 6.00x2.00x600 1000 : (6.00) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control Lever position degrees: 37...45 BEGINNING OF DELIVERY

Testina:

1st rack travel in: 11.90

Test pressure, bar: 27...29

rpm : 1095...1105 Speed 2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00

rpm : 440...500 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

: 2.80...2.90 : (2.75...2.95) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 10.50 Note remarks Firing order : 1-5-3-6-2-4 : CUM 8,3 a34 Test sheet Edition : 02.05.89 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Combination no. : 9 400 230 08900 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 BASIC SETTING Governor Governor design. : RSV400...1100A0C2190 1st speed rpm : 1100 Rack travel in mm : 10.70...10.80 Customer-spec. information Customer : C.D.C. Del.guantity cm3/: 9.6...9.8 : 6 C 8.3 Engine 100 s: (9.4...10.0) : 126.8 1st version kW : 2200 cm3 : 0.3Rated speed Spread TEST BENCH REQUIREMENTS 100 s: (0.6) rpm : 400.0 Test oil 2nd speed Rack travel in mm : 5.8...6.0 inlet temp. . C : 38...42 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) Overflow valve : 1 417 413 047 cm3 : 0.3Spread 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 017 assembly Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x : ? Orifice plate : 0,6 diameter mm FULL LOAD DELIV. AT FULL LOAD STOP : 1 680 750 014 Test lines 1st version Speed rpm : 1100 : 96.5...98.5 Del.quantity Outside diameter 1000 : (94.5...100.5) x Wall thickness : 6.00X2.00X600 cm3 : 3.50x Length mm Spread 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. RATED SPEED per values 1st version Control lever

position degrees: 46...54

1st rack travel in: 9.70

Testing:

L03

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 500...560 Speed rpm TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1100
Rack travel in m: 10.70...10.80
Ind speed rpm : 750
Rack travel in m: 10.70 1st speed 2nd speed Rack travel in m: 12.30...12.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.70 : 1140...1150 Speed rpm STARTING FUEL DELIVERY Speed rom : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm: 400
Rack travel in mm: 5.80...6.00
Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

L04

before stop.

Adjust stop lever to 0.5...1.0 mm

Start-of-delivery mark 11, cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a35 Edition : 02.05.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 089CP Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1000A0C2190 Customer-spec. information Customer : C.D.C. : 6 CTA 8.3 Engine 1st version kW : 171.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

: (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm: 1000 1st speed Rack travel in mm : 13.20...13.30 Del.guantity cm3/: 13.1...13.3 100 s: (12.9...13.5) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed : 131.0...133.0 Del.guantity 1000 : (129.0...135.0) cm3 : 3.50Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 42...50 Testing: 1st rack travel in: 12.20

: 2.80...2.90

Prestroke mm

: 1050...1060 Speed rpm 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 3rd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1150 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.1 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00 : 460...520 Speed rpm **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 Speed rpm : 1050...1060 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.50...5.70

Del.quantity cm3/ : 14.0...18.0

1000 s: (11.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a36 Test sheet Edition : 02.05.89

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 089cq

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Customer-spec. information Customer : C.D.C.

Engine : 6 CTA 8.3 Ltr.

1st version kW : 157.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)
Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - . . . : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 111.0....115.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 11.00

L07

Speed rpm : 1140...1150 2nd rack travel in: 4.00

Speed rpm : 1190...1220 4th rack travel in: 1300 Speed

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed man : 400

Rack travel in mm : 5.80...6.00

Rack travel in mm : 2.00

Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.00...12.10

rpm : 750 2nd speed

Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a37 : 02.05.89 Test sheet Edition

Replaces

Test oil : TSO-4113

Combination no. : 9 400 230 089CR

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 ltr. Engine

: 138.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.40...11.50

Del.guantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 : (104.5...110.5) Del.quantity 1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.40

109

: 1140...1150 Speed rpm

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 27...35

Setting point w/out bumper spring

: 400 rpm Rack travel in mm : 5.5

Testina:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00

: 520...580 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.40...11.50

rpm : 750 2nd speed

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

rpm_ : 750 Speed

Del.quantity cm3/: 125.0...129.0

1000 s: (123.0...131.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

L10

Note remarks

Test sheet : CUM 8,3 a38 Edition : 02.05.89

Replaces

Test oil : ISO-4113

: 9 400 230 089CS Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 127.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 100.0...102.0 Del.quantity

1000 : (98.0...104.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

1st rack travel in: 10.10

rpm : 1040...1050 Speed 2nd rack travel in: 4.00

rpm : 1080...1110

4th rack travel in: 1150

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.4

Testing:

rpm Speed : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 450...510 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a39 Test sheet : 02.05.89 Edition

Replaces

Test oil : ISO-4113

: 9 400 230 089CT Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2190

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 ltr Engine

1st version kW : 160.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. .. C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina (

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

Del.quantity : 121.0...123.0 1000 : (119.0...125.0) Spread cm3. : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testina:

1st rack travel in: 11.00 Speed rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1355...1385 Speed

3rd rack travel in: 4.00 rpm : 1360...1390 Speed 4th rack travel in: 1450 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 495...555 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm : 750 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY

Speed rpm : 400 Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

LOW IDLE

L14

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a40 : 02.05.89 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0890U

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design: RSV500...1050A0C2190

Customer-spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 123.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 9.70

rpm : 1095...1105 Speed

2nd rack travel in: 4.00

rpm : 1155...1225 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 35...44

Setting point w/out bumper spring

: 500 rpm Rack travel in mm : 5.1

Testing:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 500

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

rpm : 590...650 Speed

TORQUE CONTROL

Torque control curve - 1st version st speed rpm : 1050 Rack travel in m: 10.70...10.80 ad speed rpm : 750

1st speed

rpm : 750 2nd speed

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 750 rpm

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

: 1095...1105 Speed rpm

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 500

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a41 : 26.6.89 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 230 090 Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1100A2C2190 -5R : 9 420 234 126 Governer no. Customer-spec. information Customer : C.D.C. Engine : 6C 830 1st version kW : 112 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.30 Test nozzle holder : 1 688 901 016 assembly Openina (: 207...210 pressure, bar Orifice plate diameter mm : 0,5 Test lines : 9 680 271 029 Outside diameter x Wall thickness x Length mm : 6,00x2,00x600 (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values ____

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

```
: (2.85...3.05)
Rack travel in mm : 10.50
Firing order : 1-5-2-6-3-4
Phasing : 0-60-120-180-240-300
Tolerance + -, : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
1st speed rpm: 1100
Rack travel in mm : 11.40...11.50
Del.quantity cm3/: 9.4...9.6
             100 s: (9.2...9.8)
             cm3 : 0.3
Spread
             100 s: (0.6)
            rpm : 425
2nd speed
Rack travel in mm : 6.00...6.20
Del.quantity cm3/: 1.7...2.1
             100 s: (1.4...2.3)
             cm3 : 0.35
Spread
             100 s: (0.55)
GUIDE SLEEVE POSITION
Control-lever position
           Degree: -3
            rpm : 800
Speed
Rack travel in mm : 0.30...0.70
Governor spring pre-tension
Click setting x : ?
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
            rpm : 1100
Speed
Del.quantity
              : 94.0...96.0
            1000 : (92.0...98.0)
cm3 : 3.0
Spread
            1000 : (6.0)
RATED SPEED
1st version
Control lever
position degrees: 41...49
Testing:
1st rack travel in: 10.40
```

Prestroke mm

: 2.90...3.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00

rpm : 450...510 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100

Speed rpm : 100 Del.quantity cm3/: 135.0 1000 s: (130)

Rack travel in mm : 19.00...21.00

Remarks:

: C.D.C. # 390 6535

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a42 : 26.6.89 Test sheet

Edition Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 091

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV425...1100A2C2190

-4R

Governer no. : 9 420 234 127

Customer-spec. information : C.D.C. Customer

: 6 CT-830 Engine

1st version kW : 126 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.30

Test nozzle holder

assembly : 1 688 901 016

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.5

Test lines : 9 680 271 029

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

L19

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50 Firing order : 1-5-2-6-3-4

Phasing : 0-60-120-180-240-300 Tolerance + -., : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.35Spread

100 s: (0.6)

2nd speed rpm : 425

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.35 Spread

100 s: (0.55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
Del.quantity : 85.5...87.5
1000 : (83.5...89.5)
Spread cm3 : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.00

Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1190...1220 3rd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1300 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm: 5.6 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 425 Speed rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 : 495...555 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100
Rack travel in m: 11.00...11.10
2nd speed rpm : 950
Rack travel in m: 11.50...11.70 rpm : 750 3rd speed Rack travel in m: 12.60...12.80 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 105.0...109.0 1000 s: (103.0...111.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0 1000 s: (130)

Rack travel in mm : 19.00...21.00

Remarks:

: C.D.C. # 390 6545

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a43 Test sheet

Edition : 26.6.89

Replaces

: ISO-4113 Test oil

: 9 400 230 094 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A2C2190

: 9 420 234 132 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6c-830

1st version kW : 109.7 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.30

Test nozzle holder

: 1 688 901 016 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,5 diameter mm

: 9 680 271 029 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

L21

Prestroke mm : 2.90...3.00 : (2.85...3.05)

Rack travel in mm : 10.50 : 1-5-2-6-3-4

Phasing : 0-60-120-180-240-300 Tolerance + -, : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

cm3 : 0.35Spread

100 s: (0.6)

rpm : 400 2nd speed

Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.35

100 s: (0.55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 95.5...7(...)

1000 : (93.5...99.5)

Soread cm3 : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.40

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1130...1160 3rd rack travel in: 4.00

Speed rpm : 1145...1175 4th rack travel in: 1200

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm : 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00

rpm : 445...505 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Speed rpm . 100 Del.quantity cm3/: 135.0 1000 s: (130)

Rack travel in mm : 19.00...21.00

Remarks:

: C.D.C. # 390 6538

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 j : 07.04.89 Test sheet Edition Replaces : 1.9.88 : ISO-4113 Test oil

Combination no. : 9 400 230 096

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV425...900A4C2213-

1R

: 9 420 234 136 Governer no.

Customer-spec, information Customer : C.D.C.

: 6 CT 8.3 Engine

1st version kW : 154.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina (

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Prestroke mm

Firing order : 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + -., : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 830

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 830 Speed

/ : 135.0...137.0 1000 : (133.0...139.0) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...48

Testing:

L23

1st rack travel in: 12.40 rpm : 925...935 Speed 2nd rack travel in: 4.00 Speed rpm : 960...990 4th rack travel in: 1030 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring Speed ` rpm : 425 Rack travel in mm : 5.0 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 Speed rpm : 435...495 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 925...935 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50 1000 s: (5.50) Remarks: : C.D.C # 3908844 Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark at 10, cam rotation angle after start of delivery,

Generator

L24

cylinder 1

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a12 : 07.04.89 Test sheet Edition : 1.9.88 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 097 Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor : RSV400...1100A0C2190 Governor design. -8R : 9 420 234 137 Governer no. Customer-spec. information Customer : C.D.C. : 6 CT 8.3 Engine : 156.6 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - \frac{1}{4} = 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 12.30...12.40 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 400.0Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 122.5...124.5 Del.quantity 1000 : (120.5...126.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 40...48 Testing:

1st rack travel in: 11.30 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: ? Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.2 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 : 445...505 Speed rom **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80

Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50) Remarks: : C.D.C. # 3911952 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10, cam rotation angle after start of delivery, cylinder 1

Note remarks

: CUM 8,3 a59 Test sheet Edition : 02.05.89

Replaces

: ISO-4113 Test oil

: 9 400 230 097BA Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

: 151.4 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. . C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nazzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + -., .: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000 : 119.0...121.0 1000 : (117.0...123.0) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in 11.10

rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 3rd rack travel in: 4.00 Speed rpm : 1080...1110 4th rack travel in: 1150 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.2 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rpm : 430...490 Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10, cam rotation angle after start of delivery,

cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 10.50 Note remarks Firing order : 1-5-3-6-2-4 : CUM 8,3 a44 Test sheet Edition : 02.05.89 Replaces : ISO-4113 Test oil Phasing : 9 400 230 097BB Tolerance + - ... : 0.50 (0.75)Combination no. Injection pump Time to cyl. no. : 1 Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 BASIC SETTING Governor Governor design. : RSV400...1050A0C2190 1st speed rpm: 1050 Customer-spec. information Rack travel in mm : 12.40...12.50 Customer : C.D.C. Del.guantity cm3/: 12.2...12.4 : 6 C 8.3 Engine : 148.0 : 2100 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

100 s: (12.0...12.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed : 122.0...124.0 1000 : (120.0...126.0) Del.quantity : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 43...51 Testing: 1st rack travel in: 11.40

: 2.80...2.90

: (2.75...2.95)

: 0-60-120-180-240-300

BEGINNING OF DELIVERY Test pressure, bar: 27...29

per values

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

M01

Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1135...1165 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 4.9

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.30...5.50 Rack travel in mm : 2.00

rpm : 430...490 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 12.40...12.50

2nd speed rpm : 750

Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 750 rpm

Del.quantity cm3/: 141.0...145.0

1000 s: (139.0...147.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40

: 1090...1100 Speed rpm

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.30...5.50 Del.quantity cm3/ : 14.0...18.0 1000 s: (11.5...20.5)

MO2

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark at 10, cam rotation angle after start of delivery, cylinder 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a45 Edition : 02.05.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 097BC Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1100A0C2190 Customer-spec. information Customer : C.D.C. : 6 CT 8.3 Engine : 156.6 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. ., C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 1-5- 3- 6- 2- 4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100 Rack travel in mm : 12.30...12.40 Del.guantity cm3/: 12.2...12.4 100 s: (12.0...12.6) Spread cm3 : 0.3100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed : 122.5...124.5 : (120.5...126.5) Del.quantity 1000 cm3 : 3.50Spread 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.30

: 2.80...2.90 : (2.75...2.95)

Prestroke mm

Rack travel in mm : 10.50

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Speed rpm : 1145...1155 2nd rack travel in: 4.00 Speed rpm : 1240...1270 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 28...36 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.2 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rpm : 485...545 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1145...1155 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark at 10, cam rotation angle after start of delivery, cylinder 1

Note remarks

Test sheet : CUM 8,3 a46 Edition : 02.05.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 097BD

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1000A0C2190

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

: 151.4 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \frac{1}{2}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del.guantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 719.0...123.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.10

M₀5

rpm : 1040...1050 Speed 2nd rack travel in: 4.00 Speed rpm: 1075...1105 3rd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.2 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 : 430...490 Speed rpm **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1040...1050 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10, cam rotation angle after start of delivery, cylinder 1

M06

Note remarks

Test sheet : CUM 8,3 a47 Edition : 02.05,89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 097BE

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1050A0C2190

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 148.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \frac{1}{4}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1050 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testina:

1st rack travel in: 11.40

MO7

: 1090...1100 Speed rpm 2nd rack travel in: 4.00 : 1135...1165 Speed rpm 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 4.9 Testing: : 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 400
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00 : 430...490 Speed rom

TORQUE CONTROL

Torque control curve - 1st version rpm : 1050 1st speed

Rack travel in m: 12.40...12.50 nd speed rpm : 750 Rack travel in m: 13.70...13.90 2nd speed

FUEL DELIVERY CHARACTERISTICS

1st version Speed

: 750 rpm Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 14.0...18.0

1000 s: (11.5...20.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark at 10, cam rotation angle after start of delivery, cylinder 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

80M

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a13 : 07.04.89 Test sheet Edition Replaces : 1.9.88 : ISO-4113 Test oil Combination no. : 9 400 230 099 Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1050A0C2190 -10R : 9 420 234 142 Governer no. Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine 1st version kW : 89.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0.6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm : 1050 1st speed Rack travel in mm : 9.60...9.70 Del.quantity cm3/: 8.2...8.4 100 s: (8.0...8.6) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Del.quantity : 82.0...84.0 1000 : (80.0...86.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version

Control Lever

position degrees: 41...49

Testing:

MC9

1st rack travel in: 8.60 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1125...1155 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.2 Testing: rpm Speed : 100 Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 : 460...520 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 9.60...9.70 2nd speed rpm : 750 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 86.5...90.5 1000 s: (84.5...92.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.60 rpm : 1095...1105 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE

rpm : 400

Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

Speed

M10

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11, cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Note remarks : CUM 8,3 a49 Firing order : 1-5-3-6-2-4 Test sheet : 02.05.89 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing : 9 400 230 099AB Combination no. Tolerance + - ... : 0.50 (0.75)Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 : 9 410 230 025 EP type number BASIC SETTING Governor Governor design. : RSV400...1000A0C2190 1st speed rpm: 1000 Cust. part no. : 3911951 Rack travel in mm : 10.80...10.90 Customer-spec. information Del.quantity cm3/: 9.8...10.0 Customer : C.D.C. : 6 C 8.3 100 s: (9.6...10.2) Engine : 105.9 1st version kW cm3 : 0.3Spread : 2000 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. , C : 38...42 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 017 rpm : 800 assembly Rack travel in mm : 0.30...0.70 Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x : ? Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version Test lines : 1 680 750 014 Speed rpm : 1000 : 98.5...100.5 Del.quantity 1000 : (96.5...102.5) cm3 : 3.50 Outside diameter x Wall thickness Spread x Length mm : 6.00x2.00x600 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. 1st version per values Control lever position degrees: 36...44 BEGINNING OF DELIVERY Testing: Test pressure, bar: 27...29

M11

1st rack travel in: 9.80 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 rpm : 1090...1120 Speed 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 455...515 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle

M12

after start of delivery cyl. 1

Note remarks Test sheet Edition

: CUM 8,3 a50 : 02.05.89

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 230 099AC

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number

: 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2190

Cust. part no. : 3911947

Customer-spec. information Customer

: C.D.C.

Engine

: 6 C 8.3

1st version kW

: 119.3

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 017

Openina pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M13

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 11.30...11.40

100 s: (10.4...11.0)

Del.quantity cm3/: 10.6...10.8

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250

Del.quantity

: 106.0...108.0 1000 : (104.0...110.0)

cm3 : 3.50 1000 : (6.00)

RATED SPEED

Spread

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10.30 Speed rpm : 1290...1300 2nd rack travel in: 4.00 Speed rpm : 1355...1385 4th rack travel in: 1450 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring Speed rpm: 400 Rack travel in mm : 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 Speed rpm : 485...545 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm

Start-of-delivery mark 11 cam and

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Note remarks

Test sheet Edition : CUM 8,3 a51 : 02.05.89

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 099AD

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911959

Customer-spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 98.4 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M15

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + -, .: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 88.0...90.0 Del.quantity 1000 : (86.0...92.0) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 45...54

Testina:

1st rack travel in: 9.00 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 3rd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testina: Speed rpm Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed : 485...545 rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.00...10.10 2nd speed rpm : 800 Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed man Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.guantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

rpm Rack travel in mm : 5.80...6.00

: 400

LOW IDLE

M16

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) : 3.50 Spread cm3 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a52 Test sheet : 02.05.89 Edition Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AE Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1050A0c2190 Cust. part no. : 3911950 Customer-spec. information Customer : C.D.C. Engine : 6 C 8.3 1st version kW : 109.6 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - . . : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm: 1050 1st speed Rack travel in mm : 11.40...11.50 Del.guantity cm3/: 10.8...11.0 100 s: (10.6...11.2) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 400.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed , : 108.5...110.5 1000 : (106.5...112.5) Del.quantity : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 41...49 Testing:

Prestroke mm

M17

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 10.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1140...1170 3rd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 470...530 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm: 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a53 Test sheet Edition : 02.05.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AF Injection pump Pump designation : PES6A1000320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1100A0C2190 Cust. part no. : 3915955 Customer-spec. information : C.D.C. Customer : 6 C 8.3 Engine 1st version kW : 111.9 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp., C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

M19

Test pressure, bar: 27...29

Insp. values in parentheses Set equal delivery quant.

Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1000 Rack travel in mm : 11.30...11.40 Del.quantity cm3/: 10.5...10.7 100 s: (10.3...10.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 : 105.5...107.5 Del.quantity 1000 : (103.5...109.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 42...50 Testina:

Prestroke mm

Firing order

: 2.80...2.90

: 1-5-3-6-2-4

: (2.75...2.95) Rack travel in mm : 10.50

1st rack travel in: 10.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1195...1225 3rd rack travel in: 4.00 Speed rpm : 1205...1235 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 475...535 Speed rom **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

M20

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a54 Test sheet Edition : 02.05.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AG Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1000A0C2190 Cust. part no. : 3915958 Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 105.9 : 2000 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Phasing : 0-60-120-180-240-300 Tolerance + - 2 : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1000 Rack travel in mm : 10.80...10.90 Del.quantity cm3/: 9.8...10.0 100 s: (9.6...10.2) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed : 98.5...100.5 Del.quantity 1000 : (96.5...102.5) cm3 : 3.50 Spread 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 36...44 Testing:

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

1st rack travel in: 9.80 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 Speed rpm : 1090...1120 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring Speed rpm: 400 Rack travel in mm : 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm: 5.80...6.00
Rack travel in mm: 2.00 rpm : 455...515 Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE beed : 400 rpm Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle

M22

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a55 Edition : 02.05.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 099AH Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1250A0C2190 Cust. part no. : 3915954 Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 119.3 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. ., C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ... : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1250 Rack travel in mm : 11.30...11.40 Del.quantity cm3/: 10.6...10.8 100 s: (10.4...11.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed : 106.0...108.0 Del.quantity 1000 : (104.0...110.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: 51...59 Testing:

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 10.30

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpm : 1355...1385 Speed

4th rack travel in: 1450

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 27...35

Setting point w/out bumper spring

Speed rpm: 400 Rack travel in mm: 5.2

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

Speed : 485...545 rpm

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

:

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CUM 8,3 a56 Test sheet Edition : 02.05.89

Replaces

: ISO-4113 Test oil

: 9 400 230 099AI Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3915956

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 98.4 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M25

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ., .: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity

: 88.0...90.0 1000 : (86.0...92.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 45...54

Testina:

1st rack travel in: 9.00 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1180...1210 3rd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1250 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 485...545 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.00...10.10 2nd speed rpm : 800 Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS

1st version rpm Speed : 800 Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm Rack travel in mm : 5.80...6.00

M26

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CUM 8,3 a57 Test sheet Edition : 02.05.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 099AJ

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1050A0C2190

Cust. part no. : 3915957

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 109.6 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1 - 5 - 3 - 6 - 2 - 4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 10.8...11.0

15 s: (10.6...11.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 108.5...110.5 1000 : (106.5...112.5) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1200 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 470...530 Speed rpm **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a58 : 26.6.89 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 230 101 Injection pump Pump designation : PES6A100b320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV425...1250A2C2190 -12R: 9 420 234 144 Governer no. Customer-spec. information Customer : C.D.C. : 6 CT 8.3 Engine 1st version kW : 160.3 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. . C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.30 Test nozzle holder : 1 688 901 016 assembly Opening : 207...210 pressure, bar Orifice plate : 0,5 diameter mm Test lines : 1 681 271 029 Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5-2-6-3-4 Phasing : 0-60-120-180-240-300 Tolerance + -, : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 12.20...12.30 Del.quantity cm3/: 10.6...10.8 100 s: (10.4...11.0) cm3 : 0.35 Spread 100 s: (0.6) 2nd speed rpm : 425
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4) cm3 : 0.2 Spread 100 s: (0.3) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed Del.quantity : 106.5...108.5 1000 : (104.5...110.5) Spread cm3 : 3.5 1000 : (6.0) RATED SPEED 1st version

Control lever

position degrees: 47...53

Testing:

1st rack travel in: 11.20

N01

Speed rpm : 1290...1300 2nd rack travel in: 4.00 Speed rpm: 1350...1380 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 425 Speed rom Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 480...540 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250
Rack travel in m: 12.20...12.30
2nd speed rpm : 750
Rack travel in m: 12.20...12.30 Rack travel in m: 12.55...12.75 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 750 Speed Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0 1000 s: (130) Rack travel in mm : 19.00...21.00 Remarks: : C.D.C. # 390 7180

Adjust stop lever to 0.5...1.0 mm

before stop.

N₀2

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

: 2.80...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (2.75...2.95) Rack travel in mm : 10.50 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 b 7 : 02.05.89 Edition : 20.12.88 Replaces : 0-60-120-180-240-300 : ISO-4113 Test oil Phasing Combination no. : 9 400 230 103 Tolerance + - ... : 0.50 (0.75)Injection pump Time to cyl. no. : 1 Pump designation : PES6A1000410RS2691-2 : 9 410 230 028 BASIC SETTING EP type number Governor rpm : 1100 Governor design. : RQV350...1100AB1227R 1st speed : 9 420 231 015 Governer no. Rack travel in mm : 12.60...12.70 Customer-spec. information Del.quantity cm3/: 12.6...12.8 Customer : C.D.C. : 6 CT 8.3 100 s: (12.4...13.0) Engine cm3 : 0.4: 156.6 1st version kW Spread Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Rack travel in mm : 5.6...5.8 Test oil inlet temp. , C : 38...42 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.6Overflow valve Spread : 1 417 413 047 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly rpm : 1100 ist speed Opening 7.70...7.70 travel mm pressure, bar : 207...210 2nd speed : 1150 rpm travel mm : 8.00...8.60 rpm : 1290 Orifice plate 3rd speed : 9.50...10.10 diameter mm : 0,6 travel mm rpm : 350 : 1.20...1.60 4th speed travel mm rpm : 600 Test lines : 1 680 750 014 5th speed : 3.90...4.50 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x2.00x600 x Length mm Control-lever position Degree: -1 rpm : 1290 (A) Injection pump setting values Insp. values in parentheses Rack travel in mm : 6.70...9.30 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values ____ BEGINNING OF DELIVERY 1st version rpm : 1100 Test pressure, bar: 27...29 Speed Aneroid pressure h: 900

Del.quantity : 126.5...128.5 1000 : (124.5...130.5)

cm3 : 4.00 Spread 1000 : (6.50)

RATED SPEED

1st version Control Lever

position degrees: 60...68

Testing:

1st rack travel in: 11.60

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1260...1290 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 9...17
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00

Speed rpm : 440...500

Aneroid/Altitude Compensator Test

1st version Setting

Speed

: 500 man hPa : 900 Pressure

: 12.60...12.70 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.70

2nd pressure hPa : 405

Rack travel in m: 10.90...11.00 3rd pressure hPa : 535 Rack travel in m: 11.80...12.20

START CUT-OUT

1/min : 260 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 85.0...89.0
1000 s: (83.0...91.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 165.0...185.0 1000 s: (160.0...190.0)

Rack travel in mm : 15.30...15.70

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3912645

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark is at 7, after

start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: CUM 8,3 k 1 Test sheet Edition : 07.04.89 Replaces : 15.6.88 Test oil : ISO-4113

: 9 400 230 106 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1050A0c2216 Governor design.

-1R

: 9 420 234 154 Governer no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

1st version kW : 141.7 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C . . : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N05

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 11.5...11.7

100 s: (11.3...11.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 115.0...117.0 Del.quantity 1000 (113.0...119.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1145...1175 Speed 4th rack travel in: 1200

rpm : 0.30...1.40Speed

LOW IDLE 1 Control Lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm : 5.4

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 5.80...6.00

Rack travel in mm : 2.00 : 470...530 Speed man

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.90...12.00

2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 750 rom

Del.quantity cm3/: 134.0...138.0 1000 s: (132.0...140.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (132.0...158.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400Speed

Rack travel in mm : 5.80...6.00 Rack travel in mm: 5.80...6.00
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3911540

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

N₀6

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: DEE 7,6 h14 : 26.6.89 Test sheet Edition

Replaces Test oil

: ISO-4113

Combination no. : 9 400 230 108

Injection pump

Pump designation : PES6A100D410RS2676-1

EP type number

: 9 410 230 024

Governor

Governor design. : RSV450...1050A2C2204

Governer no.

: 9 420 234 163

Customer-spec. information

Customer

: JOHN DEERE

Engine

: 6466 AT

1st version kW : 120

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 9 681 271 001 Test lines

Outside diameter

x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60)

N07

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + -., : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 10.00...10.10

Del.guantity cm3/: 10.4...10.6

100 s: (10.2...10.8)

Spread cm3 : 0.35

100 s: (0.6)

rpm : 450 2nd speed

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.35

100 s: (0.55)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Del.quantity : 104.0...100.0 1000 : (102.0...108.0) Spread cm3 : 3.5 1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.00

Speed rpm : 1095...1105

2nd rack travel in: 4.00

rpm : 1155...1165 Speed

3rd rack travel in: 4.00

Speed rpm : 1160...1180 4th rack travel in: 1250 rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 450 Rack travel in mm: 4.9 rpm : 450 Speed

Rack travel in mm: 5.30...5.50 Rack travel in mm: 2.00 : 590...650 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 10.00...10.10

2nd speed rpm : 650

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 109.0...113.0 1000 s: (107.0...115.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0 1000 s: (165.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

: 1150 Speed rpm

Rack travel in mm : 4.60...5.00

Remarks:

: JOHN DEERE # RE29233

Screw in torque-control-spring retainer to make contact at 650 l/min.

80N

Start-of-delivery mark at control-rod travel 10.5 mm and 15, after start of delivery.

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 a60 : 02.05.89 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 9 400 230 109 Tolerance + - . . . : 0.50 (0.75)Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 : 9 410 230 030 EP type number BASIC SETTING Governor Governor design. : RSV450...1100A0C2190 -41R 1st speed rpm: 1100 : 0 420 233 247 Governer no. Rack travel in mm : 10.20...10.30 Customer-spec. information Del.quantity cm3/: 8.9...9.1 Customer : C.D.C. 100 s: (8.7...9.3) Engine : 6CT830 1st version kW : 117.1 Spread cm3 : 0.3Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 450.02nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. , C : 38...42 100 s: (1.3...2.2) cm3 : 0.3Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 017 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Opening : 207...210 pressure, bar Governor spring pre-tension Click setting x : ? Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 014 Speed rpm : 1100 Del.quantity : 89.0...91.0 1000 : (87.0...93.0) Outside diameter x Wall thickness cm3 : 3.50 Spread 1000 : (6.00) : 6.00x2.00x600 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values position degrees: 47...55 BEGINNING OF DELIVERY Test pressure, bar: 27...29 Testing:

N09

1st rack travel in: 9.20 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 29...37 Setting point w/out bumper spring Speed rpm : 450 Rack travel in mm : 5.3 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 450 rpm Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 : 525...585 Speed man TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.20...10.30 2nd speed rpm : 750 Rack travel in m: 10.80...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 90.5...94.5 1000 s: (88.5...96.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

: 450

rpm Rack travel in mm : 5.70...5.90

LOW IDLE

N10

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: C.D.C. # 3915683

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a61 Edition : 02.05.89

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 110

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number

: 9 410 230 030

Governor

: RSV450...1100A0C2190 Governor design.

-42R

: 0 420 233 248 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT830 Engine

: 150.6 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. , C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

N11

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing Tolerance + - ., . : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

cm3 : 0.3

Spread

100 s: (0.6)

rpm : 450.02nd speed

Rack travel in mm : 5.7...5.9

Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Sneed |

: 118.5...120.5 : (116.5...122.5) : 3.50 Del.quantity 1000

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.10

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1195...1225 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever position degrees: 22...30

Setting point w/out bumper spring

rpm : 450 Rack travel in mm : 5.3

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

: 450 Speed rpm

Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00

: 500...560 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.10...12.20 2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 133.0...137.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.70...5.90

N12

Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: C.D.C. # 3915685

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a62 : 02.05.89 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 230 111 Injection bumb Pump designation : PES6A100D320/3RS2691 : 9 410 230 030 EP type number Governor Governor design. : RSV450...1100A0c2190 -40R Governer no. : 0 420 233 246 Customer-spec. information Customer : C.D.C. : 6CT830 Engine : 134.2 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

N13

Test pressure, bar: 27...29 : 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Phasing Tolerance + -, .: 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 10.1...10.3 100 s: (9.9...10.5) cm3 : 0.3Spread 100 s: (0.6) rpm : 450.0 2nd speed

2nd speed rpm : 450.0
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 101.0...103.0 1000 : (99.0...105.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing: 1st rack travel in: 10.20 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1210...1240 Speed 3rd rack travel in: 4.00 Speed rpm : 1215...1245 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 31...39 Setting point w/out bumper spring rpm : 450 Speed Rack travel in mm : 5.3 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 450 Speed rpm Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00 rpm : 535...595 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 11.20...11.30 2nd speed rpm : 750 Rack travel in m: 12.00...12.20 FUEL DELIVERY CHARACTERISTICS 1st version

1st version Speed rpm : 750 Del.quantity cm3/ : 110.5...114.5 1000 s: (108.5...116.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450

N14

Rack travel in mm : 5.70...5.90 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: C.D.C. # 3915684

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a10 : 02.05.89 Edition : 14.1.88 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 115 Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1250A0C2190 -24R : 9 420 234 178 Governer no. Customer-spec. information Customer : C.D.C. : 6 CTA 8.3 Engine 1st version kW : 131.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29

N15

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ... : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

cm3 : 0.3Spread

100 s: (0.6.

2nd speed rpm : 400.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.2...1.6 100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Speed Del.quantity 1000 : 99.0...101.0 : (97.0...103.0) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.90 Speed rpm : 1290...1300 2nd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 4.9 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.30...5.50 Rack travel in mm : 2.00 Speed rpm : 470...530 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.90 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50) Remarks: : C.D.C. # 3915981

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11, cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a 9 : 02.05.89 Test sheet Edition : 1.9.88 : ISO-4113 Replaces Test oil Combination no. : 9 400 230 116 Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor : RSV400...1050A0c2190 Governor design. : 9 420 234 182 Governer no. Customer-spec. information Customer : C.D.C Engine : 6 CT 8.3 1st version kW : 154.4 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. , C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

Insp. values in parentheses Set equal delivery quant. per values ___

(A) Injection pump setting values BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N17

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4Phasing : 0-60-120-180-240-300 Time to cyl. no. : 1 BASIC SETTING rpm : 1050 1st speed Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.4Spread 100 s: (0.6) 2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.6Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050

Del.quantity : 122.3...126.5) : 4.00 Spread cm3

: (6.50) 1000

RATED SPEED

1st version Control lever

position degrees: 47...55

Testing:

1st rack travel in: 11.40 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1275 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 28...36 Setting point w/out bumper spring : 400 rpm Rack travel in mm : 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 480...540 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed : 400 rpm Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 6.00 1000 s: (8.00) Remarks: : C.D.C. # 3915962 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10, cam rotation angle after start of delivery,

N18

cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DEE 7,6 c 6 : 07.04.89 Test sheet Edition : 30.9.88 Replaces Test oil : ISO-4113 : 9 400 230 117 Combination no. Injection pump Pump designation : PES6A95D41ORS2522-2 EP type number : 9 410 230 032 Governor : RSV425...1100A2C2161 Governor design. : 9 420 234 183 Governer no. Customer-spec. information Customer : JOHN DEERE : 6466TR20 Engine 1st version kW : 110.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. _, C . : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 125...145 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29 : 1.85...1.95 Prestroke mm : (1.80...2.00) Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 8.80...8.90 Del.quantity cm3/: 8.7...8.9 100 s: (8.5...9.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 425.0 2nd speed Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 .rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 600 Del.quantity : 87.5...89.5 1000 : (85.5...91.5) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED

1st version

N19

Control lever position degrees: 48...56 Testina: 1st rack travel in: 7.80 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1190...1200 4th rack travel in: 1300 rpm : 0.30...1.30Speed LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 425 Rack travel in mm : 4.4 Testina: : 100 Speed rpm Minimum rack trave: 19.00 : 425 Speed rpm Rack travel in mm : 4.80...5.00 Rack travel in mm : 2.00 : 565...625 Speed rom TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 8.80...8.90 2nd speed rpm : 700 Rack travel in m: 9.90...10.10 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 240 mm : 9.60...9.70 Speed rpm Pressure Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 200 Rack travel in m: 9.10...9.50

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 600 rpm : 700 Del.quantity cm3/: 98.5...101.5 1000 s: (96.0...104.0)

Aneroid pressure h: -

N20

Speed rpm Del.quantity cm3/: -

1000 s: (72.0...80.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.80 rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0) Rack travel in mm: 19.00...21.00

LOW IDLE

: 425 Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE32013

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 16, cam angle after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 c 7 : 07.04.89 Edition Replaces : 30.9.88

: ISO-4113 Test oil

: 9 400 230 118 Combination no.

Injection pump

Pump designation : PES6A95D410RS2522-2

: 9 410 230 032 EP type number

Governor

Governor design. : RSV425...1100A2c2161

: 9 420 234 184 Governer no.

Customer-spec. information Customer : JOHN DEERE

: 6466TRW-06 Engine

: 98.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. ., C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 135...155

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + -., : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 8.20...8.30

Del.guantity cm3/: 7.9...8.1

100 s: (7.7...8.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rom : 800 Speed

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 600 Del.quantity : 79.0...81.0 Aneroju p. ... Del.quantity 1000 : (77.0...83.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

N21

Testina: 1st rack travel in: 7.20 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 speed rpm : 1190...1200 4th rack travel in: 1300 Speed Speed rpm : 0.30...1.30LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring : 425 rpm Rack travel in mm : 4.4 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 425 Speed rpm Rack travel in mm : 4.30...4.50 Rack travel in mm : 2.00 : 590...650 Speed rpm TORQUE CONTROL Torque control curve - 1st version t speed rpm : 1100 Rack travel in m: 8.20...8.30 1st speed : 700 2nd speed rpm Rack travel in m: 9.20...9.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 mgn hPa : 213 Pressure : 9.20...9.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 193 Rack travel in m: 8.80...9.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 600

: 700

: 500

rpm

rpm

Aneroid pressure h: -

Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5)

Del.quantity cm3/: -1000 s: (69.5...77.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.20 rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0) Rack travel in mm : 19.00...21.00

LOW IDLE

: 425 Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE31629

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 16, cam angle after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION

Tractor (tractor engines)

N22

Speed

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 Note remarks Firing order : 1-5-3-6-2-4 : CUM 8,3 b 4 : 07.04.89 Test sheet Edition Replaces Test oil : 1.9.88 : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 119 Tolerance $+ - \dots : 0.50 (0.75)$ Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 EP type number : 9 410 230 028 BASIC SETTING Governor Governor design. : RQV350...1250AB1235R 1st speed rpm: 1250 Governer no. : 9 420 231 020 Rack travel in mm : 11.90...12.00 Customer-spec. information : C.D.C. Del.quantity cm3/: 12.5...12.7 Customer : 6 CT-830 100 s: (12.3...12.9) Engine 1st version kW : 157.0 Rated speed : 2500 cm3 : 0.3Spread 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. , C : 38...42 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 017 GUIDE SLEEVE TRAVEL 1st speed rpm : 1400 : 8.40...8.50 Openina travel mm pressure, bar : 207...210 2nd speed rpm : 1500 travel mm : 9.10...9.30 3rd speed rpm : 350 Orifice plate travel mm : 0.70...1.10
4th speed rpm : 450
travel mm diameter mm : 0,6 travel mm : 1.60...2.00 Test lines : 1 680 750 014 5th speed rpm : 250 : 0.10...0.50 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness : 6.00x2.00x600 x Length mm Control-lever position Degree: -1 Speed rpm: 1550 Rack travel in mm: 6.70...9.30 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version

rpm : 1250

Speed

Test pressure, bar: 27...29

N23

Aneroid pressure h: 700 : 125.0...127.0 Del.quantity 1000 : (123.0...129.0) : 3.50 Spread cm3 : (6,00) 1000 RATED SPEED 1st version Control Lever position degrees: 41...49 Testing: 1st rack travel in: 10.90 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1405...1435 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...15 Setting point w/out bumper spring rom : 350 Rack travel in mm : 5.2 Testina: Speed rpm : 250 Minimum rack trave: 7.80 Speed rpm : 350 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version st speed rpm : 1250 Rack travel in m: 11.90...12.00 1st speed : 750 2nd speed rpm Rack travel in m: 12.30...12.50 rpm : 1200 3rd speed Rack travel in m: 11.90...12.00 4th speed rpm : 800 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure : 12.30...12.50 Rack travel mm Measurement 1/min: 500 Speed

1st pressure hPa : -Rack travel in m: 8.90...9.10 2nd pressure hPa : 200 Rack travel in m: 9.80...9.90

3rd pressure hPa : 390

Rack travel in m: 11.20...11.60 START CUT-OUT 1/min: 270 (280) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 750 Speed Del.quantity cm3/: 128.0...132.0 1000 s: (126.0...134.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 61.5...65.5 1000 s: (59.5...67.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0) Rack travel in mm : 14.60...14.80 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: C.D.C. # 3912636

Start-of delivery mark/lock = 7.5, angular displacement of the cam after start of delivery of cylinder 1.

N24

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.75...2.85 : (2.70...2.90)
Rack travel in mm : 10.50 ____ Note remarks Firing order : 1-5-3-6-2-4 : IHC 5,9 b 1 : 07.04.89 Test sheet Edition Replaces Test oil : 15.6.88 : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 121 Tolerance + -., .: 0.50 (0.75) Injection pump Pump designation : PES6A95D32ORS2750 Time to cyl. no. : 1 EP type number : 0 410 896 906 BASIC SETTING Governor Governor design. : RQV350...1350AB1236-1st speed rpm: 1350 Governer no. : 9 420 231 022 Rack travel in mm : 11.10...11.20 Customer-spec. information Del.guantity cm3/: 7.3...7.5 Customer : NAVISTAR 100 s: (7.1...7.7) Engine : MARS DT 360 1st version kW : 126.0 Rated speed : 2700 Spread cm3 : 0.3100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Test oil Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 1.5...1.9 inlet temp. , C : 38...42 100 s: (1.2...2.1) cm3 : 0.3Overflow valve Spread : 2 417 413 038 100 s: (0.5) Inlet press., bar: 2.80 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 110 GUIDE SLEEVE TRAVEL 1st speed rpm : 1400 : 8.50...8.50 Opening travel mm : 250...253 pressure, bar 2nd speed rpm : 1500 : 9.30...9.50 travel mm 3rd speed rpm : 350 Orifice plate travel mm : 1.00...1.00
4th speed rpm : 450
travel mm diameter mm : 0,5 travel mm : 1.90...2.40 5th speed rpm : 250 : 1 680 750 008 Test lines : 0.10...0.50 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X2.00X600 Control-lever position x Length mm Degree: -1 Speed rpm : 1535 Rack travel in mm : 6.70...9.30 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350

Speed

N25

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Aneroid pressure h: 900 : 73.0...75.0 Del.quantity 1000 : (71.0...77.0) : 3.50 Spread cm3 1000 RATED SPEED 1st version Control Lever position degrees: 45...53 Testina: 1st rack travel in: 10.10 rpm : 1415...1445 Speed 2nd rack travel in: 4.00 Speed rpm : 1530...1540 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 8...16 Setting point w/out bumper spring Speed rom Rack travel in mm : 5.3 Testing: : 250 beed rpm Minimum rack trave: 7.80 rpm Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 CONSTANT REGULATION rpm : 350...500 Spead Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 900 Pressure : 11.10...11.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.70...8.90 2nd pressure hPa : 320 Rack travel in m: 9.90...10.00 3rd pressure hPa : 230 Rack travel in m: 9.20...9.60 START CUT-OUT

1/min : 290 (300)

Speed

N26

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/: 55.5...59.5
1000 s: (53.5...61.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1415...1445

STARTING FUEL DELIVERY

LOW IDLE

Remarks:

: NAVISTAR : # 1811834c92

Limit shutoff stop screw to 1.0 mm.